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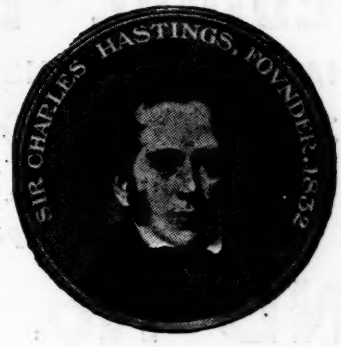

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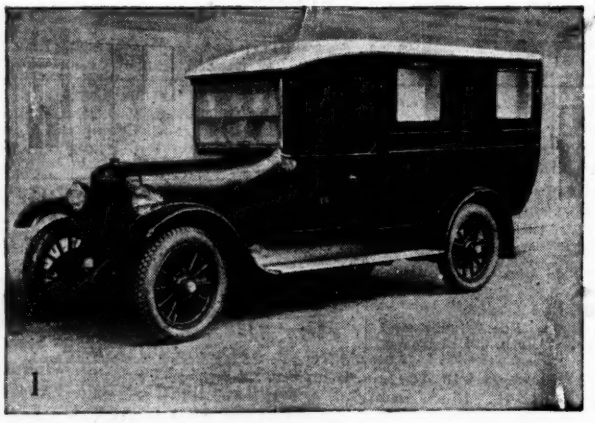

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THE SENSATIONS AS REFLEX MANIFESTATIONS OF DISEASE.

BY

P. T. HERRING, M.D.,

PROFESSOR OF PHYSIOLOGY, ST. ANDREWS UNIVERSITY, AND PHYSIOLOGIST TO THE ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

(From the St. Andrews Institute for Clinical Research.)

In a recent communication Sir James Mackenzie[1] has put forward the thesis that the early symptoms of disease reveal themselves in a disturbance of the normal reflexes. This hypothesis, which was arrived at by the members of the St. Andrews Institute for Clinical Research, involves a wider conception of what is meant by "reflex" than the term is usually held to denote. Any definition of reflex action has to be an elastic one, comprising as it must such widely differing varieties as the axon reflex and the conditioned reflex of Pavlov, but the whole subject of reflex action must be viewed from a different standpoint if sensations are to be included in the same category.

According to this theory the body is regarded as a highly complex and efficient mechanism, the actions of which are co ordinated and controlled by innumerable reflexes. In a state of health the reflexes are nicely balanced and in constant play one with another. Variations of balance in either direction occur within certain limits and provide for the physiological necessities of the organism as a whole. Symptoms of disease show themselves by a disturbance of balance which in the initial stages may be similar to that occurring in normal physiological conditions, the difference being that in the case of disease the physiological stimulus is absent or is insufficient to account for the altered condition.

As an example may be cited the breathlessness, increased cardiac action, and other phenomena associated with severe and prolonged muscular exertion. These are physiological variations of balance in a number of reflexes. The same disturbance occurs more readily with increasing age and may still be regarded as physiological, though it reveals a failing power of response in the various organs of the body. In certain diseased conditions—for example, in hyperthyroidism, the same disordered reflexes arise from a stimulus which in the normal condition is ineffective. The injurious agent acts upon some portion of the arc of one or more of the reflexes, and the normal balance is disturbed.

The symptoms of disease are illimitable, just as the reflexes are, and many of them are common to a number of different conditions. They tend, however, to group themselves in a definite manner, and it is hoped that by careful study and long-continued observation it may be possible to classify these groups and to arrange them upon a scientific basis. This can best be done by observations on the behaviour of the body itself in the earliest stages of disease. The body furnishes an apparatus more sensitive than any laboratory instrument, and the slightest deviation from the normal reveals itself in altered reflexes before the most elaborate physical and chemical tests are applicable. Further, the body, in its response to an injurious agent, indicates, in a manner which no laboratory test can do, its capacity for successful resistance, and so furnishes the skilled observer with material for prognosis as well as diagnosis. It consequently falls to the lot of the general practitioner, who most frequently sees the earliest symptoms of disease, to detect the meaning of symptoms as revealed by this most elaborate and sensitive of all mechanisms—the living body.

In order to understand the meaning of symptoms it is first of all essential that there should be a clear knowledge of the structures and mechanism on which they are based. The reflex arc in its simplest form consists of a receptor, afferent nerve fibre, nerve centre, efferent nerve fibre, and an effector. Disease may alter the normal reflex by attacking any one or more of these parts of the reflex arc.

For practical purposes one may divide the arc into three parts—the receptor, the centre, and the effector. The reflex, however, is probably in all cases much more complex than is usually represented, and this complexity is determined by the nature and extent of its connexions in the central nervous system. The reflex centres are all more or less linked up together. Interconnecting neurones with their synapses largely determine the special characters of reflex action as worked out by Sherrington. Even in the simplest reflex involving muscular movement there is co-ordination, a function which is exercised by the reflex centre. An afferent impulse on reaching the reflex centre passes to one or many neurones, the extent of its spread varying according to the character and strength of the stimulus. The activity of some nerve cells is increased while others are inhibited. Thus in a reflex producing flexion of a limb the efferent neurones of the flexor muscles are stimulated, but the efferent neurones of the antagonistic extensors are inhibited. Reciprocal innervation exists, and the impulse is so co-ordinated in the reflex centre that a co-ordinated response takes place in the effectors. Physiological evidence is lacking as to the exact nature of the mechanism involved in the visceral reflexes, but there is some reason to believe that reciprocal innervation is of very general occurrence.

The most common of the early symptoms of disease are sensations, especially those of exhaustion and pain. The ordinary physiological conception of the reflex finds no place for these sensations, but from a clinical point of view they may be regarded as reflexes provided one adopts a wider conception of what the reflex really signifies.

Receptors are universally distributed throughout all living structures in the body, and each is normally excited by an adequate stimulus differing in character according to the structure of the end organ excited. The nerve impulse travels by afferent nerve fibres to some part of the brain stem and its prolongation the spinal cord. The true reflex centres are found in what is developmentally the oldest portion of the central nervous system, and with the possible exception of the senses of smell and sight, all afferent impulses pass to that portion of the nervous system which is represented by the mid-brain, pons Varolii, medulla oblongata, and spinal cord. Many of the important visceral centres have been roughly localized, but it is a mistake to regard them as separate units. The centres are frequently diffuse, freely connected, and more or less interdependent. A powerful stimulus, such as that occasioned by the spasm of a ureter endeavouring to get rid of a calculus, provides an impulse which sets up a number of reflexes. The predominating result is pain referred to certain areas of the outer body wall, but the impulse spreads widely, producing vomiting, vasomotor, cardiac, respiratory and other disturbances. The sensation of pain is just as clearly a reflex as is the occurrence of vomiting. In the case of sensations the effector organ is the cerebrum, whether one regards their perception as taking place in the cortex or in one of the cerebral basal ganglia. The cerebrum is to be looked upon as a distinct organ with very definite functions, not the least of which is the translation of afferent impulses into sensations. The cerebrum responds to the impulse, and is in this case the effector organ; its response is the sensation of pain, or whatever sensation the afferent impulse evokes. The response by the cerebrum is as a rule only one of the results of an afferent impulse; even the sense of pain, although the most obvious symptom, may not be the essential part of the reflex. Sherrington has shown that in the spinal animal the painful stimulus is prepotent, although in this animal it cannot evoke the sensation of pain. In other words, the painful stimulus gives rise to an impulse, which, by virtue of its special character or strength, commands the pathways in the reflex centres involving many neurones and producing a great variety of responses or symptoms.

But the cerebrum can act as a receptor as well as an effector, that is to say, it can, in response to an adequate stimulus, initiate a reflex. The perception of sensation excites a number of special processes, including, it may be, memory, judgement, or other phenomena associated with cerebration. Such activity may result in an impulse which, from the point of view of the present argument, must be regarded as afferent in that it goes to the reflex centres. It is there co-ordinated and distributed to the effectors. In this sense the conditioned reflex of Pavlov is a double reflex. In the first the receptor is at the periphery and the effector is the cerebrum, in the second the cerebrum acts as the receptor and the impulse passes through the reflex centres to bring about the final response in a peripheral effector.

This conception of the central nervous system is an unusual one, but provides a working hypothesis which appears of value from a clinical point of view. It exalts the importance of the reflex centres, the really vital portions of the central nervous system. The cerebrum, and the same is true of the cerebellum, is looked upon as a distinct organ which can receive and initiate impulses, but these impulses are sorted and to a large extent co-ordinated in the lower reflex centres. The thesis, pushed to its logical conclusions, involves one in seeming absurdity. Voluntary muscular action becomes in this sense a reflex. Initiated in the cortex cerebri, it passes as an afferent impulse to some part of the reflex centre, and is there translated into efferent impulses which result in co-ordinated movement.

Voluntary muscular movement cannot be classified as a reflex in the restricted physiological sense of the term, and it might be better to employ some other term to denote the conception the wider view requires. It is difficult to find a term which expresses the general meaning so well as that ordinarily implied by "reflex," and it is at least open to question whether one cannot justifiably extend its scope to include the greater part of the mechanism whereby voluntary muscular contraction is produced. Mental processes can initiate visceral reflexes. Recollections of various kinds, mental excitement, anger, shame, and other conditions provide impulses which provoke widespread activity of the reflex centres. The resulting cardiac, vasomotor, and other visceral phenomena are undoubtedly reflex, and why should not the simultaneous contraction of voluntary muscle be included in the same category? It is true that the contractions of striped muscle can be inhibited by the will, while there is no such control over the visceral responses; but this power of inhibition is largely acquired by education and is not always complete. Many voluntary actions have much in common with the reflex. The proper swing of a golf club, and in fact skilled movements generally, show many of the characteristics of reflex action, and it is possible that they actually are reflexes. It is, indeed, in many cases difficult to determine when an action ceases to be voluntary and becomes a reflex.

There is ample reason to believe that voluntary movement and the reflex action of voluntary muscles do in many instances make use of essentially the same mechanism, and this is all that the St. Andrews view of the reflex requires. Whether all voluntary action is to be regarded as reflex involves serious problems with which we are not concerned.

The cerebrum and cerebellum occupy a very special position. While capable of acting as effectors and as receptors in the reflex arc they have their own distinctive functions, and, moreover, they exercise a control over the lower reflex centres. The control exercised by the cerebrum is mainly that of inhibition, that of the cerebellum is a reinforcement of the activity of the reflex centres. The response of the body to a given stimulus is greatly complicated by the controlling influence of these organs and the same influences complicate the altered reflexes brought about by the action of injurious agents in disease.

Reflexes are frequently grouped in pairs, the one being antagonistic to the other. Examples are seen in the voluntary muscles which are grouped to form opposing forces: the heart has accelerator and inhibitor nerve fibres, the blood vessels vaso-constrictor and vaso-dilator fibres, and so on. Opposing reflexes are nicely balanced one against the other, but the balance is in some cases influenced by this third factor acting upon the centre—namely, a control by the cerebrum and cerebellum. The influence of the cerebellum is mainly concerned with the postural reflexes, and the importance of the reflex in the maintenance of posture is well known. In a recent article Blundell Bankart[2] has given an excellent description of the postural deformities which arise from alterations in the normal reflexes. Slight postural changes may be early indications of disease, and their production is the result of a disturbance of balance of certain reflexes. Temporary alterations may be physiological, as in fatigue, but they may be pathological, and if the conditions persist actual structural deformity may ensue.

Head,[3] in a Croonian lecture upon diseases of the nervous system, points out that the manifestations of disease comprise both loss of function and outbursts of excessive activity. He ascribes these phenomena to a "release of function," and divides them into categories entitled "disintegration" and "escape from control." It may be true that, as Hughlings Jackson taught, "destructive lesions never cause positive effects, but induce a negative condition which permits positive symptoms to appear." By the impairment or destruction of one reflex arc a negative condition is produced, the normal balance of the reflexes is disturbed, and positive symptoms arise from over-action of other reflexes which are no longer held in check. The same results are shown even more strikingly outside the central nervous system. If the activity of the vagus nerve is impaired by the use of atropine the heart beats more rapidly. The heart is released from the function of vagus control, but the real interpretation of the condition lies in a disturbance of the reflexes controlling the organ, impairment of vagus activity resulting in over-action of the accelerator mechanism. Many examples of a similar nature might be given. The term "release of function" may be more appropriate to some of the conditions described by Dr. Head, but the principle underlying them is the same, and Sir James Mackenzie's theory of disturbed reflexes provides a working hypothesis of wider application.

The theory is being tested at the St. Andrews Clinical Institute, and is found to be of great value in the elucidation of the early symptoms of disease. It enables the drawing up of a rational classification of symptoms, and gives a clue to their relative importance.

Incidentally it has revealed to members of the institute, and to others who have attended the clinics, the necessity of a closer correlation between the teaching of anatomy and physiology. Both subjects form the basis of any rational conception of the problems which have to be solved in medicine, and a thorough grounding in the anatomy and physiology of the mechanism of the living body is the first essential of medical education.

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[1] Mackenzie, BRITISH MEDICAL JOURNAL, January 29th, 1921, p. 147. [2] Blundell Bankart, BRITISH MEDICAL JOURNAL, April 23rd, 1921, p. 587, and April 30th, 1921, p. 636. [3] Head, *Proc. Roy. Soc.*, B, vol. 92, p. 184, 1921.

A British Medical Association Lecture

ON

SOME POINTS IN ABDOMINAL DIAGNOSIS.*

BY

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WE all know the admirable lists of physical signs and symptoms carefully compiled in textbooks, the perusal of which makes differential diagnosis appear so straightforward and almost infallible, but we know, and to our cost, that in actual practice we find ourselves at our wits' end to make a diagnosis, and that the difficulty arises from overlapping of the signs and symptoms of widely different lesions and of what are called atypical cases. So instead of adding to the lists compiled in this manner I will discuss some of the difficulties we encounter, and try to give some hints whereby we may learn to avoid in future those failures we have all perpetrated. In brief, were we able to ascertain and elucidate in our minds those small warnings which precede nearly all acute lesions we would be led naturally and spontaneously to the climax they inevitably end in, and the crisis ceases to be a matter of doubt and is revealed as a clear inevitable event; it becomes a logical deduction. Much as is the bursting of an explosive charge inevitable when the lighted fuse reaches the detonating charge, so a gastric ulcer or chronic appendicitis or a gall stone inevitably flares up into a crisis. The exceptions to an inevitable flare-up are few and far between, and our proper mode of conduct is to advise an early operation and not to rely upon the very doubtful chance of a "flare-up" not occurring. Where we find our real difficulty is in unravelling the warnings, since so often various acute "crises" in their early stages have

* Delivered before the Worcestershire and Herefordshire Branch, British Medical Association, April, 1921.

many signs and symptoms in common. This leads to the next point I want to emphasize, namely, the taking of the history.

THE CLINICAL HISTORY.

My personal experience has impressed me with the fact that a history of a case may be acquired most laboriously and painstakingly, and yet be of comparatively small value in diagnosis. All the facts of the case may be recorded, but they bear no relation to one another; they have no sequence; they fall over one another and confuse us. Yet the taking of a history is the actual unravelling and elucidation of those warnings which, as I have indicated, nearly always precede the crisis or climax, and is the key to its logical diagnosis. It is in the taking of a history that one person may ascertain new facts, or correlate and elucidate already acquired facts in their true bearings, and so be enabled to stick to the real course of events and avoid the many by-paths amongst which a mere jumble of events is so apt to lead the unwary.

The taking of a history does not mean asking questions merely; it entails the guiding of the answers, since in all cases there are salient facts and others which are immaterial, and one salient fact leads up to the succeeding ones, and if we miss the hint conveyed by one salient fact and do not follow it up, we lose our way and fog our minds. For example, gastro-intestinal symptoms may be set up by genito-urinary disease, or a nervous lesion, or by certain poisons; and unless we are put on the right track we are apt to treat the symptom as the disease. This is where the personal factor enters. The taking of a good history—one, that is, which will inevitably lead to what I have called a logical deduction, in other words a diagnosis—necessitates a good working knowledge of all the abdominal viscera in health and disease.

CAUSES OF ABDOMINAL CRISES.

Diseases, or crises, such as we are now discussing may have common origins. The essential cause of acute cholecystitis and appendicitis are usually the same—namely, a septic condition of the gastro-intestinal tract. Why should one individual's appendix be unable to resist the infection while his gall bladder is proof and his neighbour's appendix resist while his gall bladder succumbs? Here we have the personal factor of the patient to consider, his personal habits, diet, leanness or corpulence, constipation, and a thousand and one other things in general, while in particular there is the organ involved. I believe a person to be born with a vast inequality in the initial capacity of his various organs to sustain the work thrust upon them, and, above all, in their ability to resist bacterial invasion or the effect of toxaemia. In fact, a man may be a millionaire in liver and a pauper in pancreas. This is what used to be called "constitution," and if the particular characteristics are familial and not individual a family history assumes a new aspect towards other diseases than tuberculosis and syphilis. I believe such a familial characteristic can frequently be established with regard to arterio-sclerosis and renal disease, and insurance companies charge a higher premium to insure the child against appendicitis if its parents have suffered from that disease.

If we consider the common causes of abdominal disease, we shall find that if we look for primary causes alone to elucidate the enigma of a crisis we are often disappointed. Many times, indeed, the primary cause will have disappeared. We all recognize the disappearance of the primary causal rheumatism and the unhappy persistence of the cardiac disease, or of the primary septic urethritis and the persisting ankylosed joints, or of scarlet fever and the persistence of the chronic nephritis. We do not equally recognize this in cases of acute abdominal crises, such as is best illustrated in a case of gastric ulcer where all the septic teeth have been extracted and a clean mouth now exists, although the very fact that many teeth are absent is in itself a proof that much sepsis must have existed at one time or another in the mouth, and have contaminated the stomach mucosa.

The factor of time in producing a crisis is not sufficiently appreciated. If a patient has acquired a gall stone, however long it may remain quiescent, sooner or later with the lapse of time other factors arise which cause a disturbance of the equilibrium hitherto maintained between the stone and the gall bladder. Other stones form, and one is propelled into the orifice of the duct by some trivial accident, and is just small enough to be firmly grasped by the peristaltic action its presence excites, and thus produces gall-stone colic, while if it is carried far enough it may obstruct the main duct and so cause jaundice; or duodenitis is set up by an indiscretion in diet or an increase of sepsis, and a stream of virulent germs gains access to the ducts and gall bladder and sets up acute cholecystitis in the already damaged organ. At any rate, given an initial lesion, time is more than likely to witness an increase in its virulence or superimpose a complication. It is this complication which is the crisis we are called upon to diagnose and treat.

An appreciation of the nature of the sequelae which must, according to my opinion, sooner or later arise in every initial lesion suspected or known to exist, narrows considerably the difficulties of diagnosis of a crisis in being, and leads me again to emphasize the need to hark back far enough in the past history for strong presumptive suggestions of an initial lesion, and in the light of that presumption to assess the existing crisis as the inevitable termination to that particular lesion. It would save many lives and much pain and danger were we to advise our patients to accept early operation once an initial lesion is recognized, instead of deferring it till an inevitable crisis arises.

THE PATHOLOGICAL ELEMENT IN DIAGNOSIS.

In diagnosis there are two chief considerations: one is the pathological, the other the anatomical. An accurate appreciation of the predominating signs or symptoms will help very greatly in narrowing down the possible lesions from the pathological standpoint. If a case is seen moderately early one should then be able to locate the lesion as in one or at most two possible organs, so making an anatomical diagnosis. It must be in the experience of all of us that at a late stage of an abdominal crisis the whole aspect of a case may alter by the addition of a complication, so that neither a pathological diagnosis—that is to say, of the primary lesion—nor an anatomical is possible.

Some acute lesions result in the predominance of one feature such as: (1) Gastro-intestinal disturbance (vomiting, diarrhoea, intestinal obstruction, meteorism); (2) profound toxaemia; (3) pain and its concomitants; (4) the signs of haemorrhage; and (5) peritonitis.

One of the most important of the gastro-intestinal disturbances is intestinal obstruction. What is intestinal obstruction? Academically this is easily answered, as its name implies mechanical interference with the onward flow of the intestinal contents. Actually it is not so easily answered. Its manifestations are confused with a totally different condition—namely, physiological obstruction. The first difficulty arises because so many lesions which are said to produce intestinal obstruction do not in the least obstruct the lumen of the bowel. What they do is to inhibit the peristaltic action, or, in other words, paralyse the gut. Take the case of a Littré's hernia, in which a by-pass—Meckel's diverticulum—is strangulated; this has no effect upon the lumen of the bowel, which is entirely patent throughout. Or take the case of a mass of great omentum strangulated in an external hernia: this has still less connexion with the lumen of the bowel, yet the effect is to stop the onward flow of the intestinal contents and death may result.

These lesions act first by inducing irritation, then inflammation and necrosis of the peritoneum, and at a later stage by systemic poisoning due to absorption of virulent poisons from the proximal side of the constriction. Peristaltic inhibition may be set up by the proximity of an abscess or an acutely inflamed organ, as is seen in pyosalpinx with pelvic abscess, or an acutely inflamed gall bladder. Then, again, torsion of an ovarian cyst or a pedunculated fibroid will produce all the symptoms of intestinal obstruction and be treated as such. In all these cases the interference with the normal action of the bowel is only a symptom. It is not the crisis, and thus we may be misled. Physiological obstruction is a passive obstruction generally induced by an inflammatory lesion or severe twisting of the peritoneum. Mechanical obstruction is an active lesion.

THE ANATOMICAL ELEMENT IN DIAGNOSIS.

Then we have the converse state of affairs, in which, after the onset of an actual gross obstruction from a band, one or more faecal evacuations occur, either spontaneously or as the result of treatment by an enema or saline purgative, and such an occurrence is accepted as a proof that, whatever the lesion, it is not intestinal obstruction. The fact is that if the big bowel is loaded with faeces and actual obstruction is set up in the small intestine or proximal part of the large bowel, the bowel can and often will spontaneously empty its contents, especially those lying in the rectum. Further efforts to relieve the patient, by enemas especially, or by saline purgatives, will then empty the contents of the pelvic colon and other portions of the big gut, but a time will arrive when all efforts to effect further relief fail. The sooner this state of affairs is reached and recognized, the better for all concerned.

If we make a routine examination of the rectum in every abdominal crisis, we can in some degree safeguard ourselves against making false deductions, for, assuming we find a loaded rectum and a descending colon with obvious contents (felt by the abdomen), we reason: "Now we must get rid of all the contents of the rectum and colon, and when that is effected then we must ascertain whether food from the small bowel (or from a part of the colon proximal to the assumed lesion) comes along and is evacuated." If this happens we may fairly make the deduction that the lesion is non-obstructive, and twelve hours should be the outside limit to set. If the rectum is empty and all our efforts to produce an evacuation are failures, we may take it that there is a mechanical obstruction, since there is always some residue in the colon and a considerable quantity in the small intestine.

The passing of flatus in small quantity at infrequent intervals, unaccompanied by any sense of relief to the patient or improvement in physical signs, must not be taken as evidence that intestinal obstruction does not exist; flatus in small quantity is readily formed in the rectum and colon distal to an obstruction. Thus the less we rely upon the complete cessation of the passing of flatus and faeces as proof of intestinal obstruction, and the more we rely upon the collateral signs and symptoms, especially increasing distension, outlining of the intestine and coiling, the absence of early profound changes in pulse and temperature but their steady deterioration, the better for the patient. We must always bear in mind that sudden change in the usual regular habits of a person's bowel associated with other gastro-intestinal symptoms, for instance, nausea or vomiting and colicky pains, is a highly suspicious event.

Mechanical obstruction varies greatly in its manifestations according to the site of the lesion. The nearer to the stomach the interruption the earlier does persistent vomiting arise, the less marked is the general distension, there are fewer coils, and as they more completely empty they are not so prominent, collapse and grave general symptoms supervene quickly, while the "classical" signs of complete absence of flatus and faeces are long delayed; if waited for, the patient will probably succumb. When the obstruction occurs at the pelvic colon, and especially if it be due to volvulus, we get a typical acute intestinal obstruction, with complete cessation of flatus and faeces from the onset, rapid formation of outlines and coiling, marked and increasing distension, steady deterioration of pulse, slight rise of temperature, foul tongue, and late onset of vomiting, but once established, persistent, distressing and of the gravest prognosis. Even in this instance a slight evacuation of faeces may occur at the onset. Meteorism, or great distension by gas in the intestine, is characteristic of a volvulus; a twisted sigmoid may fill the whole abdomen, pushing up and obliterating the liver dullness everywhere except in the mid-axillary line. A twisted caecum or small intestine may form coils of great dimensions.

INTUSSUSCEPTION.

In infants suffering from an acute crisis we have to distinguish between intussusception and entero-colitis. There are many signs in common—for instance, collapse, vomiting, diarrhoea, pain, pulse and temperature—but two very characteristic signs are present in intussusception: (1) the absence of the caecum, and (2) the presence of a tumour. The vast number of intussusceptions sooner or later carry on the caecum.

(1) In the commonest form, the ileo-caecal, the caecum is quickly carried away from the right iliac fossa; but if we are fortunate enough to be able to examine that region very soon after the onset of the crisis, we may detect a swelling there which is the beginning of the tumour formation. Usually, however, we see the case at a later stage; then we fail to feel the caecum, and a peculiar emptiness and absence of the normal elasticity is observed; there is obviously something wanting, and our fingers sink deeply into the region and may actually palpate the back of the hollow cavity of the iliac fossa. It is a very characteristic and early sign.

(2) The absence of the caecum proves that it must be elsewhere, and at an early stage we cannot find where it is, for the good reason that it is tucked up under the liver. We may be fortunate enough to catch it before it entirely disappears, as a definite vertical tumour just below the costal margin. When it has passed beyond the hepatic flexure it reappears as a horizontal (sausage-shaped) swelling about the level of the umbilicus, which is best felt during a quiescent period—that is, during the intervals between colicky pains.

If we examine the rectum at this stage we cannot feel the tumour, but we learn a definite fact—namely, that the rectum is empty of faeces; the finger returns covered by some amount of blood-stained mucus, but devoid of faeces. In acute entero-colitis a rectal examination will show, when the finger is removed, *there is always some amount of faeces adherent*, whether there be also blood-stained mucus or not, and very often the withdrawal of the finger will be followed by a slight escape of faeces or an explosive discharge of flatus, which does not occur in intussusception. The explanation is simple. In intussusception the big bowel very quickly empties itself, and nothing additional in the way of food residue can pass the obstruction to replace it, while the blood and mucus formed by the strangulation is passed along by the colicky contraction of the colon, and is found in the rectum quite early. In entero-colitis every spasm carries on some small quantity of faecal residue which suffices to stain the finger. It may contain blood and mucus, but the quantity of either is small in comparison with the amount found in intussusception. At a later stage the soft extremity of the intussuscipiens may be felt from the rectum and the finger actually passed into the lumen.

PULSE AND TEMPERATURE.

Pulse and temperature records are the best methods of recording progress in every lesion, but in abdominal crises such records are invaluable, especially if graphically recorded on charts; without them we are placed at a distinct disadvantage. The frequency and quality of the pulse afford the most constant and best general guides to increasing severity or improvement in a case. The nearer the diaphragm, the larger the area of peritoneum involved, the quicker is vomiting induced by the lesion, the more frequent is the pulse and the worse its quality. Similarly with internal haemorrhage, the more rapid the loss of blood or the more persistent the loss, the worse the pulse. Indeed, the long continuance of a state of collapse may be the only indication of internal haemorrhage, whether into the lumen of a hollow viscus or into the peritoneal cavity. If it is being extravasated into the retroperitoneal tissue it is invariably associated with severe pain from stripping up of the tissues. Grave lesions may start without a pulse alarming in frequency or quality, but steady deterioration will be noticed as the case proceeds; especially is this the case in non-inflammatory lesions. In an acute pelvic lesion, or one in which the organ or structure is retroperitoneal or excluded by adhesions from the general peritoneum, or in the case of the gastro-intestinal tract the more distant the lesion, the less is the relative frequency and quality of the pulse disturbed. A consideration of a pulse record is a valuable guide in prognosis.

The curve of the temperature is more erratic and appears less amenable to rules, as may be observed in gall-stone colic when a high temperature, often accompanied by a rigor, initiates a mild attack. Also in acute renal infection, such as an ascending infection by *Bacillus coli*, alarming temperatures may be recorded, yet a few days of appropriate treatment clears up the condition. It is notorious how slight a lesion suffices to produce a high temperature in a child or a nervous adult. On the contrary, in the aged and infirm we may find either an absence of or a low or

subnormal temperature associated with grave abdominal lesions.

In internal haemorrhage we regard a continued absence of a rise of temperature or a fall as one of our leading clinical signs, and if associated with a frequent small and weak pulse, sighing respiration, and restlessness, it is diagnostic. A continued low temperature, one only slightly raised, after the stage of collapse has passed, indicates a non-inflammatory lesion as distinct from a perforative or other peritoneal lesion; if continuously subnormal it indicates the supervention of a peritoneal lesion of a mild virulence. A sudden fall of a previously raised temperature, unless accompanied by equivalent signs of improvement, is generally a very bad sign.

Thus the associated condition of the pulse and temperature will often enable us to decide between a mucosal infection and a peritoneal lesion, and in conjunction with the absence of muscular resistance (rigidity) a good pulse is of good augury even though the temperature be high. A bad pulse with even a moderate temperature makes one anxious, since it gives ground to fear either that the cardio-vascular system is not of good quality or that there is profound toxaemia. For instance, in intestinal obstruction from bands, twists, or kinks—that is to say, non-inflammatory obstruction—the initial rise of pulse frequency and temperature is slight; but the steady deterioration of the pulse and rise of temperature, with the continuance of abdominal discomfort, increasing distension, intermittent pain, the onset of nausea and vomiting, the absence of flatus and faecal evacuation—these clearly indicate the diagnosis.

Often symptoms may appear to be better as a result of treatment. For example, in an acute case an enema or a laxative may produce a fair evacuation of flatus and faeces and the patient experiences relief, and a small drop in the temperature perhaps occurs; but if a careful estimate of the pulse frequency and quality fails to correspond and confirm the apparent improvement, we must discount the good impression and recognize that the good effect is solely due to removing a certain amount of the contents of the abdomen, so relieving tension, and not to any improvement of the actual crisis.

As distinguishing between thoracic and abdominal crises, the pulse, temperature, and respiration ratio is a valuable guide. If the respiration increases in frequency by 50 per cent. or over, the temperature rises rapidly to a high level (anything over 101°), and the pulse also increases in frequency, say to 100 and over, but is of good volume, big and bounding, a thoracic condition is almost certain. Each symptom may continue to get worse, but a rapid development of such a complex within a few hours, whatever the reflex pain in the abdomen and the apparent muscular rigidity, points conclusively to pneumonia. The diagnosis of a basal pleurisy is not so readily made by the pulse-temperature-respiration ratio alone, but the catchy character of the increased respiration, the stitch-like pain relieved by pressure, the early development of a "rub," associated with the others, is strong evidence that the lesion is in the thorax.

THE late Dr. Charles Albert Hingston of Plymouth, who died on April 5th, leaving net personalty of £86,269, has bequeathed over £25,000 to charitable institutions, including £200 to the Plymouth Public Dispensary.

Mr. Alfred Poynton, solicitor of Birmingham, who died on July 28th, has bequeathed £1,250 to the Children's Hospital, Birmingham, to endow a bed in memory of his daughter, £2,500 each to the General Hospital and the Queen's Hospital, Birmingham, for like purposes, £1,750 each to the Women's Hospital, the Orthopaedic and Spinal Hospital, the Blind Institution, the Eye Hospital, the Ear and Throat Hospital, and the Skin and Urinary Hospital, Birmingham, and £500 to the Birmingham Dispensary.

THE following are among the bequests made under the will of the late Mr. William Sutcliffe of Manchester, who died on May 25th: £1,000 each to the Manchester Royal Infirmary, St. Mary's Hospital for Women and Children, Salford Royal Hospital, and the Ancoats Hospital; £500 to the Northern Counties Hospital for Incurables; £300 each to the Northern Hospital for Women and Children, Cheetham Hospital, and the Manchester Victoria Memorial Jewish Hospital; £250 to the Manchester Children's Hospital; £200 each to the Manchester and Salford Hospital for Skin Diseases, the Royal Albert Institution, Lancaster, and the Christie Hospital (Cancer Pavilion and Home).

EIGHTY-NINTH ANNUAL MEETING

OF THE

British Medical Association.

Held at Newcastle-on-Tyne, July, 1921.

SECTION OF VENEREAL DISEASES.

Colonel L. W. HARRISON, D.S.O., R.A.M.C., President.

PRESIDENT'S INTRODUCTORY REMARKS.

IN opening the first meeting of the Section, Colonel HARRISON remarked that this was only the second year in which the diseases known as venereal had been grouped for discussion by a distinct section. The bond uniting their interest in these diseases, which were similar only in the manner of their contraction, was forged by their interest in the public health. He hoped that the members of the Section would keep before them in these discussions and afterwards the public health ideal in the treatment of venereal disease. He feared that it was an ideal which was too often forgotten, and that the medical attendant was too prone to cease his efforts at a lower plane—the mere relief of the patient. It was only by aiming always at rendering the patient permanently non-infective, and being content with nothing less, that we should achieve any results of value to the public health.

DISCUSSION ON THE TREATMENT OF SYPHILIS.

TREATMENT OF SYPHILIS IN THE MALE.

BY

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A PAPER which opens a discussion ought to be provocative rather than constructive, interrogatory rather than didactic, and I propose to raise problems rather than aim at laying before you a cut-and-dried scheme for the treatment of syphilis. A little more than a decade has elapsed since the introduction of salvarsan, and the time seems ripe for a free discussion of some of the many points that have arisen since the arsenobenzol group of remedies came upon the field. I trust that one result of this meeting will be to clear up some matters on which there is still considerable divergence of opinion.

If I may for a moment be allowed to indulge in a personal note, I should like to say that my experience in the treatment of syphilis extends to exactly twenty-one years, so that for ten and a half years before salvarsan was introduced I had experience of the old remedies; and I will take this opportunity of saying that, although the Ehrlich-Hata discovery has wellnigh revolutionized the treatment of syphilis, it was quite possible in the old days to obtain excellent results from the careful and prolonged use of mercury and potassium iodide. I mention this in passing because it is sometimes forgotten. In those days mercury was our sheet-anchor, and, if properly administered, rarely failed us. But the introduction of the arsenobenzol group of remedies supplied us with new and invaluable allies. Their wellnigh dramatic effect in causing the disappearance of the outward and contagious lesions of the disease, especially those affecting the mucous membranes, was something that we had never been privileged to see before. But this was and is a qualified advantage, for it is capable of luring both patient and physician into a condition of ill-grounded security, since the disappearance of visible lesions does not indicate that the disease has been eradicated.

Modern research has contributed enormously to the efficient treatment of syphilis, but I am of opinion that the chief contribution has not been a therapeutic but a diagnostic one. By the recognition of the *Treponema pallidum* in a small, possibly innocent-looking, sore we are able to make a diagnosis at a very early date, and the earlier syphilis can be diagnosed the more efficiently can it be treated. If there is any ground for the recent statement that the special neurotropic strain of spirochaete has

a longer period of incubation than the ordinary, then early diagnosis and immediate and thorough treatment become more imperative, for by these means we may strike a lethal blow at the parasite before the infection becomes systemic.

If a case presents itself sufficiently early it ought to be possible to arrive at an accurate diagnosis long before the Wassermann reaction becomes positive. In my experience it is not the rule to get a positive reaction till fifteen to seventeen days after the appearance of the primary sore, and if made full use of these seventeen days are of incalculable value. The chancre and the enlargement of the adjacent lymphatic glands are the first indications of Nature's attempt to localize the infection.

The question arises, Is any good purpose served by the excision or destruction with the galvano-cautery of the primary sore? Theoretically this would seem to be the path of wisdom, wherever it is possible, for by so doing we remove the focus from which systemic infection is taking place. But it is doubtful if the real advantages are as great as one might *a priori* expect. For it is more than likely that during the period which elapses between the infection and the development of the primary sore the treponema has been finding its way along the lymph channels to the lymphatic glands; and the nearest lymph glands are probably already tenanted by numerous colonies of spirochaetes before they become palpable. Further, we have no precise knowledge of the exact moment when the treponema invades the blood stream. What is happening in what the French call the period of second incubation—the time which elapses between the evolution of the chancre and the cutaneous eruption? The difficulties of discovering the spirochaete in the blood are so great that we do not know when it breaks through the barrier of the lymphatic glands and invades the circulation. Till this fact is known we lack the knowledge that would enable us, on rational grounds, to decide whether we should excise the chancre, and, if so, what is the latest date at which such a procedure is advisable. But even in the absence of such knowledge I should like to hear the opinion of the Section upon this point. Personally, I believe that whenever it is possible the primary sore should be excised; and where this is not possible an attempt should be made to interfere with the viability of the spirochaetes within it by local inunction with Metchnikoff's ointment. Further, I believe that good may be done by inunction of the same ointment over the adjacent enlarged lymphatic glands.

The value of the arsenobenzol group of remedies being admitted, I should like to hear some considered opinions as to which is the most efficient, the handiest, and the safest of them to use. Those of you who have had experience of the original salvarsan will, I imagine, be prepared to admit that no substitute for it, and no modification of it possesses quite in the same degree the properties of maximum therapeutic effect with a relatively small degree of toxicity. Personally I have used salvarsan and neo-salvarsan, kharsivan and neo-kharsivan, arsenobillon, and N.A.B., as well as galyl. In my opinion salvarsan was the best of these, followed very closely by kharsivan. Nowadays I pin my faith to neo-kharsivan, which I have found to be uniformly reliable, and in the use of which I have never had the misfortune to meet with any of those serious by-effects which sometimes give rise to anxiety. But though it is an excellent and trustworthy remedy, one has sometimes found that a rebellious case, in which it has been found difficult to convert a positive into a negative reaction, will yield at once if for the neo-salt one substitutes a dose or two of salvarsan or kharsivan. I should like to know if any of you have had the same experience.

Having decided upon the particular preparation we intend to use, we have next to make up our minds as to the best method of using it. I take it for granted that most of you favour the intravenous route in all recent cases. The intramuscular route for administering arsenical derivatives is best reserved, if it is used at all, for chronic cases or for cases of nerve syphilis.

Since salvarsan was introduced opinion has varied almost from year to year as to the frequency with which injections should be administered, and as to the dose each should contain. We are still a long way from attaining to that *therapia magna sterilisans* with a single dose which was proclaimed with such a loud flourish upon German trumpets when salvarsan first entered the field. Now, the need of repeated injections is recognized on all hands. But there is no general consensus of opinion as to whether it is better to make use of massive doses of the drug in each injection, or whether it is preferable to give smaller individual doses in more frequent injections until the same aggregate dose is reached. I imagine that most of you have varied your practice in this respect from time to time. Like you, I have changed my procedure with the flux of the years, and now I am an advocate of massive individual doses. This question is, I am convinced, only secondary in importance to the question of the total aggregate dosage, and I trust the Section will discuss this matter thoroughly.

There is something to be said for both points of view. I give large doses because my aim is the greatest possible therapeutic effect in the shortest time. We must not forget the possibility that by repeated small doses we may confer upon the treponema unusual powers of resistance to the lethal action of the drug, thus rendering its complete eradication from the system a matter of greater and greater difficulty. And there is this further point, of immense practical importance to all in charge of venereal disease clinics: the average patient tends to cease his attendance long before he can be declared to be cured. I believe that in Liverpool something like 60 per cent. of all patients cease to attend the clinics before they are discharged. They constitute themselves the arbiters of their own cure, basing their opinion upon the disappearance of outward symptoms. That being so, and as there is at present no means for compelling a free Briton to subject himself to more treatment than he is inclined to undergo, it seems to me that the wise policy is to strike hard by every means in one's power at the disease while one has the opportunity. If a patient takes upon himself to cease attendance before his course is over, we may then console ourselves with the thought that what treatment he had was thorough.

Another point upon which the Section might profitably express an opinion is whether it is better to administer mercury simultaneously with salvarsan, or whether it is better to follow up the salvarsan course with mercury at a later date. There are some *a priori* objections to combined simultaneous treatment. It may be urged that the coincident administration of two highly toxic remedies throws an undue strain upon the economy, and that in our endeavour to strike a lethal blow at the invading organism we may, by saturating the system with arsenic and mercury, do damage to the organs of elimination or cripple the natural mechanisms of defence upon the integrity of which a cure may ultimately depend. We should, however, remember that salvarsan and its congeners are only slightly organotropic, and that just as opium is well tolerated by a man in pain, so mercury is, as a rule, well tolerated by a person with syphilis.

My practice is to administer both remedies simultaneously and in as large doses as the patient can tolerate. It is hardly necessary to insist upon the need of a careful examination of the patient before embarking upon such active treatment. If his kidneys are sound and his heart, lungs, liver, and nervous system free from organic disease, his teeth in good condition, and his skin free from any disease of the sweat and sebaceous glandular systems, there is little danger of any serious by-effects of a toxic nature. It is, however, always necessary to bear in mind that we are not treating a disease, but an individual who is suffering from a disease, and, setting aside any preconceived ideas as to the best treatment, we must always be on the look-out for personal idiosyncrasies.

Mercury tends to produce toxic symptoms if it accumulates through the establishment of a vicious circle of partial elimination through the gastro-intestinal mucosa and partial reabsorption. This may be in large measure prevented if during a mercurial course one gives the patient collosol sulphur in doses of 2 drachms thrice daily after food. While, if massive dosage with salvarsan should unfortunately cause an exfoliating dermatitis, the skin condition can be rapidly influenced for the better by the use of intramine. I should like to hear some discussion of this serious complication. Its incidence seems to be very capricious. I have been fortunate enough to see very little of it in my work with salvarsan, but others would seem to have been less favoured. The worst case

I have met with in my practice was in a woman who had had very small doses—a little more than a gram in all of neo-kharsivan—when the eruption broke out.

I suppose we are all agreed that for routine hospital treatment there is no method of administering mercury so satisfactory as the intramuscular injection. But what should we use, soluble or insoluble preparations? And in what strength should we use them? I prefer the 40 per cent. grey oil. Some of you, I know, prefer a 10 per cent. mercurial cream; some of you may possibly prefer the salicylate of mercury, or you may choose to administer a soluble salt. In very obstinate cases calomel injections should never be forgotten. A course of them will sometimes alter the whole character of an intractable case. Mercury is an indispensable ally. It may not have the striking power possessed by the arsenobenzol group of causing symptoms to disappear in the course of a few hours, but it has powers, that I would only accord to salvarsan with hesitation, of worrying away at the last vestiges of the disease till it is eradicated. Intravenous injections of soluble salts of mercury cannot, in my view, be compared with intramuscular injections of the remedy. In obstinate cases, in which after the disappearance of all outward signs of the disease the Wassermann reaction persists as positive, I should like to commend to your attention the great value of mercurial inunction. This should not be carried out by the patient himself but by an expert rubber, and with the naked hand. The custom of giving a patient a supply of dilute mercurial ointment and instructing him to rub a piece the size of a bean into the groins or armpits every night is worse than useless. To get full value from mercurial inunction a large area of the cutaneous surface should be made use of at each treatment. The treatment should commence with a bath, after which the legs and arms should be shaved if they are very hairy. The first inunction should cover the whole of the back, from just below the vertebra prominens to the sacrum. The second should be applied to the whole skin surface of both thighs; the third to both legs; the fourth to both arms, from the shoulder-joint to a point midway between the elbows and the wrists. On the fifth night the rubber should return to the back again, and on the following evenings proceed seriatim as before.* The anterior abdominal wall should not be used for mercurial inunctions. Thin cotton underclothing should be worn during a course of rubbings, and a warm bath should be taken once a week. The rubbings are best carried out, at least in the secondary stage of the disease, in the evening, for there is evidence that the treponema is a nocturnal parasite and tends to swarm in the skin lesions in the evening hours.

The particular preparation of mercury to be used for inunction is a matter of choice. I advocate what are known as "mercurettes"—oblong blocks of cacao butter containing 30 grains of metallic mercury in fine subdivision in 60 grains of excipient. They are singularly free from irritating properties and penetrate the skin very satisfactorily. Twelve rubbings spread over a fortnight constitute a mild course, while twenty-four rubbings, with an interval of three weeks between each dozen constitute a full course. If due attention be paid to the emunctories and the teeth are kept clean, mercury given in this way is well tolerated and exhibits its full therapeutic effect. I never despair of converting the most intractable positive Wassermann into a negative till the patient has been thoroughly rubbed; and I commend this procedure very heartily to any of you who may not have made use of it in a rebellious case. It is, in my opinion, the ideal method for treating syphilis of the central nervous system, and far surpasses in efficacy any results I have ever obtained from the salvarsan treatment of such lesions.

In a city like Liverpool many of one's patients are seafaring men, and in order that treatment may not be unduly interrupted I am in the habit of prescribing for them, when their more intensive treatment with injections of salvarsan and mercury is over, a supply of Hutchinson's pills. They are easily carried, and armed with them a sailor may go to the ends of the earth and still keep up effective treatment. I order one pill three times a day for three weeks in every month. If the patient is to be away for a prolonged period I instruct him to continue this treatment for three months, and, if there have been no further symptoms, to rest for the fourth month and then begin again as before. In this way I find that a negative reaction, attained by intensive treatment, may be kept negative. Here it may not be out of place to mention that during periods of rest from active treatment I think it is a good plan to administer quinine in small doses in an acid mixture.

A matter of great difficulty to determine is when to cease treatment. We all know that the disappearance of outward symptoms is no criterion of cure. Long after all visible manifestations of syphilis have vanished the reaction given by the blood serum, and, more important still, by the cerebro-spinal fluid, may be positive. One immense service done by the Wassermann reaction is this: it has driven into our minds the knowledge (if such instruction were required) that syphilis is a disease characterized by long periods of suppression of outward signs. Nowadays I believe that every case is treated conscientiously and thoroughly until the Wassermann reaction becomes negative, if such a happy issue is attainable. That is all to the good. But is it enough? We are in danger of making a fetish of the Wassermann reaction, and regarding a negative reaction as a criterion of cure. There is probably only a slight risk of this happy optimism infecting practitioners like yourselves, who are largely engaged in the treatment of syphilis. But the danger is a very real one, and would seem to have engulfed some members of the profession who are not acquainted with the limitations of the reaction. A negative reaction, even after a provocative injection, is not in itself a criterion of cure, though it be repeated at regular intervals over the space of twelve months. It is, however, a goal at which we should aim.

Many factors may conspire to make the result a confusing one: for instance, the method employed in carrying out the test, the reagents used, the experience of the worker, not only in carrying out the test, but in reading his results. Probably we have all had experience of completely opposite reports from different laboratories on the same sample of blood. With a view to eliminating one factor that may introduce error, it may interest you to know that Professor Ernest Glynn has recently invented a machine which delivers absolutely accurate quantities of the necessary reagents into twelve or more test tubes at a time. This is a great improvement on the old practice of measuring the reagents with a pipette, and makes for mechanical accuracy.

The further the Wassermann test is divorced from simultaneous clinical observation, the more dangerous guide it becomes. We must never forget this: the Wasserman reaction is not an indication of the presence in or absence from the system of the living spirochaete; it is an indication of a reaction on the part of the living tissues to the activity of the spirochaete. At a given moment the organism may be quiescent, or it may not be present in sufficient number to provoke those changes in the patient's biochemistry which we recognize by the test. The reaction would then be negative, even though living spirochaetes—potential creators of disaster—were present in the system. And, on the other hand, a positive reaction does not necessarily mean that there are still living spirochaetes present. It is a presumptive proof that there are, but antibodies may continue to persist in the blood for a time after the organisms which provoked them are dead. In recent cases, where treatment has been thorough, it is unlikely that these antibodies resist elimination for any great length of time. In the old-standing case—the ancient tertiary with a long history of frequent recurrences—which continues to give a consistent positive reaction no matter what the treatment, it is worth while considering whether the antibodies may not remain locked in the system, and produce a strongly positive reaction long after the last spirochaete is dead. But we must never forget this, that it is out of the moiety of patients who give a consistently positive reaction that a pathetic host of tabetics and general paralytics will be gathered in the years to come.

I do not know whether the Dreyer-Ward flocculation test, the formol-gel reaction of Gaté and Papacostas, the Sachs-Georgi reaction, or the perethynol flocculation test of Vernes may yet be found to supply us with definite and reliable information as to the complete eradication from the system of the spirochaete. Such a help would be of

* For these practical details I am indebted to Mr. Arthur Padley of Liverpool, who is a professional rubber.

incalculable value. In its absence I cling to the opinion that even in the presence of a negative Wassermann reaction we should keep every case of syphilis which we have first encountered in the primary stage under observation and occasional systematic treatment for three years from the date of infection, and for four years if we have not seen the case until the secondary eruption is in full efflorescence.

You may chide me for being conservative and may suggest that I distrust my remedies and the evidence of the tests. My answer is that I have seen enough of syphilis to distrust the disease profoundly. And we must not be content with absence of visible symptoms and a consistent negative serum reaction. The blood serum may be negative and the cerebro-spinal fluid may remain positive. That way danger lies, and we should do all in our power to convert a positive cerebro-spinal fluid reaction into a permanent negative. If we succeed in doing that we shall have done all that is humanly possible to save our patient from the dread consequences of his infection.

It is not for me to dictate to you how you should treat your cases. There can be no routine hard-and-fast system of treatment for every case. We are seeking to eradicate a disease, but let us not forget that it is not a disease we are treating so much as a patient suffering from an attack of that disease, and consequently our treatment must be plotted out so as to give us the best possible results in each case. But we should make it our constant aim to treat each case with thoroughness, and with that end in view I append a scheme which, if modified to suit the individual, ought in most instances to give good results.

I do not wish to dictate the lines which the discussion should take, but I should like to invite your opinions upon a number of points that seem to me to be of considerable importance and upon which there is some divergence of view as well as of practice:

1. Whatever be the remedies we employ, whether is it better to give large and progressively increasing doses over a short period or small doses over a long period, or should we give small doses at very short intervals?

2. What are the best methods of introducing our remedies? (*a*) Mercury — should it be given intramuscularly, by inunction, or by the mouth; and, if given intramuscularly, are soluble or insoluble preparations the best? (*b*) Salvarsan—should this be given intravenously or intramuscularly or by a combination of both methods, and what considerations should influence us in choosing the route?

3. What is the rôle of potassium iodide in the secondary stage of the disease?

4. Can we define the precise parts played by salvarsan and by mercury in the treatment of the disease? In how far do their actions overlap, in how far do they differ?

5. Should we use both remedies separately or simultaneously?

6. Is there any ground for the opinion that salvarsan used without mercury may aggravate the type of syphilis, and by damaging the nerve cells predispose to what the French call "neuro-recidives"?

7. Does salvarsan used alone "tertiarize"—that is, advance the date of incidence of tertiary symptoms?

8. In the presence of a persistently positive Wassermann reaction (*a*) of the blood serum, (*b*) of the cerebro-spinal fluid, what course should we adopt, all other symptoms being absent?

9. Should we or should we not continue to treat a patient who has had no symptoms for twelve months, and who has given a consistently negative reaction during that time in both serum and cerebro-spinal fluid?

10. What number of injections of (*a*) salvarsan, (*b*) mercury, should constitute a course; and what is the smallest gross dosage we should aim at in our first course?

11. On what facts are we to base our opinion as to "cure"?

12. Have we reasonable grounds, in the light of modern experience, for promising a patient who is willing to persevere with treatment, and who comes to us in the secondary stage of the disease, but who is otherwise healthy, that he can be cured?

13. In the presence of a consistently positive serum reaction in a man who has been well treated, and who has had no symptoms for two or more years, are we justified in permitting marriage?

14. Can we hope for any permanent success by treating incipient cases of general paralysis of the insane or tabes with salvarsan and mercury; and how should we use them in such cases? Have intrathecal injections of salvarsanized serum justified their continuance in our armamentarium?

Scheme for the Treatment of an Adult Male Suffering from Secondary Syphilis (Wassermann Positive) but otherwise Healthy.

(A) A full course of neo-kharsivan consists of ten weekly intravenous injections as follows: 0.45, 0.6, 0.9, 0.9, 0.9, 0.9, 0.9, 0.9; rest fourteen days; then give 0.9 and 0.9. Total of neo-kharsivan 8.25 grams.

(B) A full course of Hg injections consists of twelve weekly doses each of 7 cg. of 40 per cent. grey oil.

1. Begin by giving (A) and (B) simultaneously.
2. Wait a month; then test blood and cerebro-spinal fluid. If both are negative, test again in three months. If still negative, wait three months, then give half (A) and half (B).
3. If reaction is positive at the first test, after completion of the first course, give one-half (A) and (B) in its entirety; and repeat if necessary at end of three months until the Wassermann reaction becomes negative.

2nd Year.—Even in absence of all symptoms, the Wassermann being negative, give one-half (A) and (B) in its entirety. This course may be divided into two parts and given at intervals of six months.

3rd Year.—No symptoms; Wassermann negative. Give one-third (A) and (B) in its entirety with potassium iodide for three months, dividing the treatment up over the year.

4th Year.—No symptoms; Wassermann negative. Give one-quarter (A) and (B) in its entirety with potassium iodide for three months, spreading treatment over the year.

In all cases the blood and cerebro-spinal fluid should be tested at regular intervals.

The scheme may be modified at any stage to meet the requirements of the individual case. A case met with in the primary stage would, in all likelihood, require less intensive treatment, while a tertiary case will need less arsenic and more potassium iodide.

To those who may consider that the amount of treatment suggested is excessive, I would say that it is better in dealing with a disease like syphilis to err on the side of too much rather than too little treatment. We have not yet succeeded in determining the golden mean.

SYPHILIS IN WOMEN AND CHILDREN.

BY

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MODERN methods of diagnosis and treatment of syphilis are an addition to, and not a replacement of, the methods employed by the older workers. Failure to recognize this fact has led to many cases being treated unsuccessfully. The disease, originally occurring in an extremely acute form, has become modified in the course of time. The older writers gave pictures of syphilis which indicate that it was originally of a much more severe type with much severer manifestations than those with which we are acquainted to-day.

The assumption, which is too prevalent to-day, that the modern aids to diagnosis, such as the Wassermann reaction and the methods of treatment which have been the results of Ehrlich's discovery, have rendered the observation of workers of past generations of no value, and that Ricord, Fournier, Colles and many others have left nothing behind them of which the study to-day is profitable or desirable, is one against which I wish to enter a protest. Nothing is further from the truth. The work of the past is as important to-day as it ever was, and there is not to-day, any more than there was in the past, a short cut to a therapeutic heaven.

The prevalence of that assumption is due to one feature of the disease which I am old enough to have had an opportunity of studying, and that is the tendency of the more acute manifestations to ameliorate in course of time. When I was a student I was taught that the manifestations of syphilis in its earlier stages, as they then occurred, were

less severe than they had been in the student days of my teachers. I am now able to tell my students that these manifestations are to-day less severe than they were when I was a student, even after making every allowance for the impressionable mind of youth. Further evidence on this point can be gained from a study of the writers of the eighteenth and seventeenth centuries. Even novelists—Smollett, for instance—gave pictures of syphilis of a type now fortunately unknown, while the traditional account of its first spread on a large scale into Europe, for which the wars of the Emperor Charles V are popularly supposed to have been responsible, describes the sufferers as dying of it as of an acute specific fever. This modification of type renders the diagnostic difficulties greater, and though the earlier symptoms are ameliorated, the later effects are, if anything, rendered more marked owing to the cutting down of treatment or neglect to ask for treatment of any kind.

The spread of syphilis is influenced by certain social conditions. A contagious disorder will obviously spread more widely in a dense than in a sparse population. The paper by Ehlers of Copenhagen on "Syphilis in Iceland," in the New Sydenham Society's publication of 1900, is worthy of perusal in regard to the distribution of the disease in a sparsely populated country, even when, as in Iceland, local customs and social conditions would seem in some ways to facilitate contagion. I need hardly refer to the late war for further instances of the rapid spread of parasitic diseases. It seemed almost impossible to deal successfully with many of them.

Importance of the Family Doctor.

The venereal diseases clinic should not be the only avenue of attack on the disease. Early diagnosis and continuous treatment are most important, and the co-operation of the family doctor is necessary for any real advance. Diagnostic difficulties are not greater than they were in years gone by, but diagnostic facilities are now much increased. The technique of modern methods of treatment is not difficult, and can quite easily be learnt if time is available. The family doctor can, with great advantage, treat a large number of the patients now attending clinics. Clinics should be much more largely consultative for diagnostic purposes, and should be used for such treatment as the family doctor feels he is not able to undertake, either on account of lack of time, or any other reason which may seem good to him.

The foregoing remarks apply especially to syphilis in women, the majority of whom will avoid the publicity of a special clinic, and a large proportion avoid consulting any medical practitioner at all. This is often from lack of knowledge of the possibilities of infection and the possible immediate and remote results. There are obvious difficulties in the recognition of primary symptoms by the patient herself, and if the site of infection is within the genital canal this is not possible.

The effect of the foregoing is that we have the following conditions:

(1) A contagious disease of which the severer manifestations have become ameliorated.

(2) A disease which is diffused more rapidly when conditions in which physical contact, direct or mediate, is either facilitated or unavoidable.

(3) That in women the earlier results of infections from sexual contact are more often than not overlooked altogether, the more so as the manifestations occur in a mitigated form.

(4) Pregnancy, either legitimate or illegitimate, may be the result of the sexual contact producing infection.

In women, therefore, syphilis is more likely to be undetected in its early stages than in the male, and from woman's mode of life it is more likely to be diffused by them extragenitally, to say nothing of the intrauterine transmission of the disease. Diagnosis and efficient treatment is more difficult with women than with men. The class of women liable to diffuse infection is emphatically not the ordinary prostitute. Of the first hundred women I treated four only were prostitutes, twenty-one were single women, and the remainder married women.

Diagnosis is easy if the usual clinical signs are present, but these are usually modified and seldom typical. A typical hard sore is rare. Sores are usually multiple, and induration may escape notice. The rash is often evanescent and atypical in colour. Enlarged glands can usually be found, and an injected throat, without soreness, is common. In ordinary gynaecological work it is unusual to meet with a large number of cases in which inflammation of the vulva, sores, papules, or herpetic eruptions occur, apart from certain well-defined affections which have other symptoms. Such conditions, therefore, while not evidence of venereal disease in general and syphilis in particular, should always raise some suspicion in the absence of the conditions on which they generally depend. As regards glands, enlargement of the epitrochlear glands, in the absence of a sore on the hand or arm, is almost pathognomonic. The later secondary and tertiary symptoms are usually unmistakable.

Such symptoms as miscarriage and premature labour should be to some extent discounted as diagnostic during the war period, as the probability of foetal scurvy, which can be experimentally produced in animals by food deficient in vitamins, might be expected to occur from similar causes. A further allowance must be made for miscarriages among munition workers owing to toxic absorption and T.N.T. and other poisoning.

The Wassermann Reaction as an Aid to Diagnosis.

This is particularly useful when controlled in doubtful cases by the use of several antigens of varied origin and composition and checked further by a modified Sachs-Georgi precipitation reaction. It should not by itself be taken as conclusive evidence. While it is liable to error on account of its occurrence in certain diseases, most of which are rare in England, and while the reaction is not always to be obtained in cases in which the clinical evidence of syphilis is unmistakable, I have found in my own cases that it is rare to obtain a positive reaction in cases in which there is not some definite clinical evidence.

It seems hardly necessary to state that the technique of obtaining the blood is a most important factor—for instance, I have heard the reaction condemned *in toto* as unreliable when the specimen of blood in question had been taken with a syringe recently boiled and still wet. The particular specimen was extracted and divided into two parts, one of which gave a positive reaction and the other a negative reaction, to the great mystification of the practitioner. The instance is of course capable of explanation as follows: the blood which first entered the syringe would become mixed with any undistilled water adhering to the syringe, while that which entered last, if the specimen was not shaken, would not become so mixed. It is not unreasonable to suppose that the blood which was drawn last and consequently the least contaminated with water, would give the real reaction, and that the haemolysis produced in the part first drawn and last expelled from the syringe would be so altered as to make the reaction valueless. It should, in my opinion, be stated that in any case in which any of the usual signs associated with syphilis are present and the Wassermann reaction positive, the patient should be given anti-syphilitic treatment.

In regard to the percentages of married women, widows, single women, and children respectively who have attended the Bristol clinic, married women and widows show 56 per cent. of the total, single women just over 30 per cent., and children under 15 years of age over 10 per cent. These are, of course, round numbers.

As regards the age distribution, the figures are as follows: Married women from 15 to 20 years of age, under 5 per cent. of the total; from 20 to 30 years of age, 45 per cent.; from 30 to 40 years of age, 35 per cent.; from 40 to 50 years of age, just over 12 per cent.; over 50 years of age, 5 per cent. Single women from 15 to 20 years of age, just over 30 per cent.; from 20 to 30 years of age, 58 per cent.; from 30 to 40 years of age, 5 per cent.; from 40 to 50 years of age, 5 per cent. These figures are not surprising and meet expectations as regards the younger women. I would, however, call the attention of the Section to the fact that nearly 20 per cent. of the married women are infected at ages between 40 and 60; it should be noted also that 90 per cent. of the infection among single women occurs below the age of 30.

As regards the Wassermann reaction, 76 per cent. of patients showing a positive reaction showed also positive clinical signs. Of the remainder, more than half can be accounted for by cases in which there was evidence from previous history which justified the suspicion of infection—for instance, mothers of children definitely affected with

congenital syphilis, the wives of syphilitic husbands, and women diagnosed as suffering from syphilis in whom clinical evidence had disappeared under treatment. There were approximately 10 to 12 per cent. of cases in which, though the reaction was positive, there were no clinical symptoms and no definite history.

A large number of cases were those of women suffering from vaginal discharge only; in 30 per cent. of these the reaction was positive, and the discharge ceased under antisyphilitic treatment. It is suggested that there is no reason why the endometrium should be exempt from syphilitic manifestations such as those which occur in the mucous membrane of the mouth. Further, it is also suggested that the pathological changes in the ovary, an organ normally subject to periodic gross tissue changes, are not infrequently due to syphilitic infections. The same suggestion may be made with regard to those conditions of the uterus which are manifested by such accidents of parturition as concealed accidental haemorrhage. Again, a certain proportion of cases of sudden death from cerebral lesions in women within the child-bearing age are undoubtedly often due to inherited or acquired syphilis.

Illustrative Cases.

A patient admitted to the maternity wards of the Bristol Royal Infirmary as a case of puerperal eclampsia, suffering from albuminuria and slight convulsive seizures, died twenty-six hours after delivery. On *post-mortem* examination death was found to be due to a ruptured aneurysm of the basilar artery.

Two cases of sudden death in single women, both of whom were between the ages of 35 and 40, were due to cerebral haemorrhage; in both aneurysm of the cerebral artery was found *post mortem*.

I should here like to refer again to the cases in which the Wassermann reaction was found to be positive in cases in which no other symptom but vaginal discharge was present, and also to the apparent value of salvarsan substitutes in the treatment of gonorrhoeal discharge. The evidence of definite clinical signs cannot be controverted by a negative Wassermann. If only one or two of the usual signs are present and the Wassermann reaction is positive a course of treatment should be given. In doubtful cases a common-sense consideration of the frequency with which the manifestations are met with in ordinary cases will generally lead to a right decision.

The influence of pregnancy on the Wassermann reaction seems anomalous. Quite a large number of patients presenting clinical evidence give negative reactions; but after parturition this anomaly seems to disappear in a certain time, and the reaction becomes positive, even where clinical evidence is lacking. A negative Wassermann reaction cannot be regarded as conclusive if taken when a patient is actually undergoing treatment. Mercurial treatment should be dropped for at least one week before the blood is tested.

Prognosis.

This is most difficult, especially when answering the question as to when marriage may take place. No patient can be looked upon as cured until she has received a full course of salvarsan substitutes amounting to from 6 to 10 grams, spread over a period of several months and accompanied by mercurial treatment, and a negative reaction to the Wassermann test is given on three separate consecutive occasions at intervals of three months. For practical purposes this amounts to active treatment lasting over at least fifteen months.

Treatment.

The particular dose of salvarsan substitute should be obtained in each separate case (see Harrison's *Diagnosis and Treatment of Venereal Disease in General Practice*, p. 228). The initial doses should be small, as some patients are intolerant of these drugs. This may be manifested in grave and even fatal results when large doses are used to begin treatment.

Description of Fatal Case.

The following illustrates the danger of administering large initial doses: A girl, aged 20, after being given a dose, amount unspecified, at a clinic in the north of England, was sent by train to Bristol to a rescue home. She arrived in a semi-comatose condition with marked jaundice. She became completely comatose and the jaundice increased. She was admitted to the Bristol Royal Infirmary with symptoms of acute yellow atrophy of the liver, and later she died. At the *post-mortem* examination the liver was found to show disturbance usually found in acute yellow atrophy.

Small injections at weekly intervals with a fortnight's interval between each dose should be employed. Between 1½ and 2 grams seems to avoid toxic manifestations; but should there be any indication of skin or conjunctival irritation a longer interval should be allowed to elapse. The urine should be tested in all cases. Certain patients have special signs of intolerance. One of my cases gets serious attacks of asthma whenever she has more than a few small doses at infrequent intervals. Mercury should be administered either by the mouth or by injections during the whole of the period of treatment with salvarsan substitutes and afterwards. In fact, a two years' course of mercurial treatment is still looked upon as a necessity. Intramuscular injections, though quite effective, should be avoided as a rule, as they cause considerable pain, and occasionally suppuration follows. The intramuscular treatment is, however, almost a necessity in the case of very young children. In the latter cases mercurial treatment—inunction—is carried on at the same time as other methods are used.

Pregnant women should be treated as in-patients in all cases in which accommodation can be found for them in the hospitals. In these cases, provided no symptoms indicating intolerance arise, treatment should be intensive. Constant supervision is, however, necessary in order to ensure that treatment is efficiently carried out, and to see that no avoidable risks are incurred in the course of treatment. Up to the present no cases have occasioned anxiety among my patients.

It is hardly necessary to go into details as to local treatment. The ordinarily accepted methods are usually quite sufficient. Old cases in which there are definite symptoms of affection of the nervous system also require a certain amount of careful watching, as alarming symptoms have arisen in such cases. Treatment should be made as effective as possible without being either so painful or so inconvenient as to lead to its discontinuance by the patients.

To summarize:

1. There are greater difficulties in women than in men, owing to the frequent failure of the patient to detect symptoms in herself.
2. A very large number of those affected contract the disease innocently.
3. Women are, on the whole, more likely to act as innocent carriers than men, especially of extra-genital infections.
4. Diagnosis is, on the whole, more difficult with women than with men.
5. Treatment is often interfered with by home duties, conditions of employment, pregnancy, and parturition.
6. The special social and family surroundings of women make the disease in their case more difficult to deal with, and perhaps of more importance than in the male.
7. Quite a large proportion of women suffering from syphilis come, sooner or later, into the hands of the gynaecologist for the treatment of various pelvic affections.

DISCUSSION.

Dr. JOHN ELLIOTT (Chester) said that it would be impossible for any one individual to deal with all the fourteen points which had been proposed for discussion by Dr. MacKenna in addition to the interesting charts and statistics which Professor Swayne had brought forward. For his own part, he was not so much interested in how to administer the remedies for syphilis as in how to administer them with safety to the patient. Accidents following salvarsan administration had been recorded comparatively frequently. In his own experience, which was now extensive, he had met with only one such case—a case of jaundice from delayed salvarsan poisoning—which he had recorded in the *Lancet* of June 4th, 1921. This case had recovered, and, after a period of rest and recuperation, was now being treated again with N.A.B., with the precautionary measures which he would now formulate.

1. Watch the patient, and if any patient complained of feeling ill stop the treatment at once. Patients who had an idiosyncrasy to salvarsan gave some indication early, which should be a warning. This was so in the case of jaundice he had quoted, when salvarsan treatment had fortunately been suspended early owing to the complaint of "feeling unwell."

2. The administration of liquor adrenalin. chlorid. (1 in 1,000) m xxv in water twice daily, with two intermediate doses of calcium lactate gr. xx in water, commencing on the day of injection and continuing for two or three days. This prevented the after-effects which were not uncommon after two or three days.

3. When mercury was administered coincidently with the salvarsan course, sulphur sublimate—a teaspoonful in treacle or syrup—should be given at bedtime each day. It assisted elimination and counteracted the tendency of mercury to interfere with the excretory activity of the kidneys.

4. Give some simple diuretic, such as barley water or whey.

If these simple directions were carried out less would be heard of salvarsan poisoning.

Mr. E. B. TURNER (London) stated that from his own experience since 1874 he could corroborate Professor Swayne's statement that syphilitic symptoms and early lesions were not so malignant and virulent at the present time as they had been between forty and fifty years ago. He wondered, however, whether the later manifestations, such as ataxy and general paralysis, were not more frequent now than in former times. He pointed out the absolute necessity for early diagnosis and prompt treatment, and said that the ideal at which to aim was a state of affairs in which the general practitioner took at once his smear, found his own spirochaetes, and immediately gave the first injection of salvarsan, or one of its substitutes, in order that the period of infectivity might be materially shortened. He hoped that the medical officers in charge of venereal disease clinics would do all in their power to institute post-graduate courses for the instruction of those practitioners who wished to perfect their technique in the treatment of these diseases, so that skilled attendance might be available for those sufferers who, particularly in rural and sparsely populated districts, were either unable or unwilling to attend a clinic. He hoped that in the future it would be a General Medical Council enactment that no student should be admitted to examination for his qualification unless he produced evidence that he had been properly and practically instructed in the diagnosis and treatment of gonorrhoea and syphilis. He considered that along these lines lay the best hope and expectation that the spread of this disease, with its dire results to the community, would be prevented.

Dr. EDWARD HARRISON (Hull) emphasized the importance of examining the most trivial looking sores for spirochaetes. He ventured to speculate whether it might not prove possible to find spirochaetes before the appearance of sore, and suggested the raising of a blister on the penis of a patient who had been exposed to infection. The serum might then be searched for the presence of spirochaetes. If a chancre were excised the inguinal glands should also be removed. No one would now remove a breast carcinoma without clearing the axilla.

Dr. DAVID LEES (Lecturer on Venereal Diseases, University of Edinburgh), said that before discussing the points raised by Dr. MacKenna, he would like to associate himself with Mr. E. B. Turner's remarks on the necessity of teaching post-graduates and undergraduates the principles of diagnosis and treatment of venereal disease. It was difficult, no doubt, for the practitioner to give the necessary time to make himself proficient in diagnosis and treatment, and this was seen in the condition of the cases reporting at clinics for treatment. Very few practitioners seemed to utilize either the staining methods or dark-ground illumination method in the early diagnosis of syphilis. The greater majority of them still trusted to the appearance of generalized syphilis and a positive Wassermann test, so that patients came for treatment at a stage when a definite cure could not be assured. Their greatest hope was, he thought, in teaching the undergraduate the principles of diagnosis and treatment; and he was very glad to be able to inform the meeting that Edinburgh University had taken that step, and made a knowledge of venereal diseases compulsory in their curriculum. Every student at his final examination at Edinburgh University must now pass a written and clinical examination on the subject. A three months' course, consisting of twenty-five clinical lectures, was given to final year students, and the standard to be attained was the same as in other special subjects, such as diseases of the ear, nose and throat, and diseases of the eye. If this were made compulsory in every teaching school, in a very short time one would disseminate throughout the country a body of young medical men with a sound working knowledge of the subject, who would appreciate much more than the profession did at present the absolute importance of early and efficient treatment.

Coming to the points raised by Dr. MacKenna, he mentioned the success which he had had in administering arsenobenzol preparations in small doses, daily or on alternate days, and more especially in cases where there were complications which contraindicated the giving of a large single dose. For example, in a patient with generalized syphilis, complicated with Vincent's angina and Ludwig's angina, doses of a "914" salt of 0.1 gram were given daily, and the end-result, after a total of 4 grams had been given, was better than one would have anticipated with weekly doses of 0.6. Several cases of albuminuria also reacted to treatment extremely well by these same methods. He was of opinion that in complicated cases, where there was reason to expect intolerance to a large dose, in this method of small doses one could give the drug with less risk and with rather better end-results. Salvarsan preparations he considered more potent when given intramuscularly than when given intravenously, and the discomfort following intramuscular administration of the "914" salts was in many cases negligible. With regard to mercury, intramuscular medication of the insoluble preparations was the most practicable and the most efficient method in an out-patient clinic. It had little or no pain associated with it, and signs of intolerance to mercury were not nearly so common as when the drug was given by the mouth. Inunction, although a very effective method, was not practicable in the average out-patient. It was an extremely useful and valuable method in children. He wished to emphasize the importance of continuation treatment after the symptoms had disappeared, and especially so continuation treatment with mercury and iodides.

In the clinic over which he had charge he tried to instil into the patient's mind the fact that mercury was as important in his treatment as "606." The patient came regularly at weekly or at fortnightly intervals for observation and for administration of mercury. He did not think it was right to send a patient away with a supply of this potent drug, in the shape of tablets or pills, in his pocket and to allow him to take these with impunity and without close observation, over a period of, say, two or three months. Not only was the system bad, but it tended to make the patient think lightly of his condition, and did not impress him with the importance and necessity of his being under observation until such time as the attendant was satisfied that the treatment could be stopped.

Colonel L. W. HARRISON (President of the Section), in closing the discussion, said that he was sure he was voicing the feelings of the meeting in expressing appreciation of the valuable papers read by Dr. MacKenna and Professor Swayne, and of the remarks made by the speakers who had taken part in the discussion. He would far exceed the time limit if he attempted to discuss each of Dr. MacKenna's fourteen points, and would therefore touch on only a few.

As to dosage, he was in favour of commencing with a comparatively small dose in order to test the patient's tolerance. He had originally fixed this at the amount which in the majority of cases would bring about disappearance of accessible spirochaetes in about twenty-four hours. He had been disappointed, however, with the therapeutic activity of the modern arsenobenzol compounds of all countries, since 0.45 gram of "914" did not now cause disappearance of spirochaetes in any but a small proportion of cases. He thoroughly agreed with Dr. MacKenna that the modern preparation was not a patch on the original "606." He considered that the intramuscular method of administering "914" gave better therapeutic results than "606" given intravenously. Unfortunately "914" administered in this way hurt, and he was glad that sulfarsenol had come, since it caused no more pain than an intramuscular injection of mercury, and seemed to give

excellent results. For intravenous injection he preferred silver-salvarsan, since it was convenient and seemed to act better than "914."

He preferred to give both arsenobenzol and mercurial remedies simultaneously unless there was a contraindication, as in cases of nephritis or in pregnant women, when he would commence with the arsenobenzol preparation. He believed in giving all remedies throughout the treatment rather than stopping the arsenobenzol, as many did, as soon as the Wassermann reaction was negative. On the vexed question of treating so-called inveterate Wassermann "reacters," he was in favour of keeping under treatment any such cases who had still before them some years of active life. It was out of the ranks of the Wassermann reacters that most of the late effects of syphilis were recruited, and it was in parts of the body which were subjected to stress, strain, or injury that recurrences took place. He admitted that at the last International Congress he had suggested as a possible explanation of a persistently positive Wassermann reaction that the tissues had formed the habit of elaborating those substances we discover by the Wassermann test and continued to do so after the parasite had gone. But he had always held that it was safer to go on treating the patient. Recently he had had the serum of a number of such cases systematically tested out to an end-point, and had often found a marked effect of the treatment on the strength of the reaction. Such serums, if tested in the ordinary manner, would be returned at the beginning and end of a given course of treatment as positive or strongly positive, and the clinician gained the impression that the treatment had had no effect because the true strength of the reaction had not been determined by the pathologist at the beginning and end of the treatment.

He was interested in the fact that no speaker had mentioned what had been termed "haemorrhagic encephalitis" amongst the toxic effects, and he thought it must be because this tragic complication, which was fairly common about 1912 and 1913, had become rare. He could not help thinking that the present rarity of encephalitis was due to the lower initial dosage now employed. On the other hand, he was very surprised that nobody also had mentioned jaundice, which was now much commoner than formerly. The true etiology of jaundice was still an unsolved problem. An interesting feature of the fatal form was its occurrence in outbreaks, which had been noted in other countries as well as in this—outbreaks which could not be traced to faults in the brand of remedy employed or the technique. He was convinced that, in the avoidance of severe toxic effects, nothing was more important than careful observation of the patient throughout the course. He had had the opportunity of watching the practice of many military hospitals during the war and of comparing their results under a programme of treatment which was very similar in all the hospitals, and the difference in toxic effects experienced by different hospitals was very striking. The hospital where every patient was examined carefully for signs of intolerance—skin, mucous membranes, and the sense of well-being—before each injection showed far less severe toxic effects than that where one dose was injected after another strictly according to programme, and without any regard to the fact that the patient might have an erythema, jaundice, or stomatitis, or was feeling thoroughly out of sorts.

He thought the point about the removal of or attack on a primary sore was that spirochaetes might be buried in it, more or less cut off from the general circulation by the thrombosis of vessels and by the fibrosis which had occurred, and that these could not be reached by remedies introduced into the circulation in the ordinary way. Spirochaetes had been demonstrated in the scars of primary sores as long as twenty-five years after infection.

DEMONSTRATIONS.

During the afternoon of July 20th demonstrations were held at which outfits for the treatment of venereal diseases, water-colour paintings of syphilitic lesions, and models of clinics were exhibited. The venereal clinic at the Newcastle Infirmary was also open to visitors and methods of administering arsenobenzol compounds demonstrated. The arrangements for these demonstrations were in the hands of Dr. Hudson (Newcastle), who must be congratulated on the excellence of the programme provided.

DISCUSSION ON THE TREATMENT OF GONORRHOEA.

OPENING PAPERS.

TREATMENT OF GONORRHOEA IN MEN.

BY

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IN opening a discussion on the treatment of gonococcal infection in the male I propose to take up certain aspects only of treatment, rather than attempt to cover the whole field of treatment, and to mention a few of the points which strike one as of importance in dealing with the material coming to an out-patient venereal clinic and the wards attached to it. The aspects of treatment I propose to touch on are:

(1) General treatment, including hygiene, diet, etc.;
(2) Local treatment of the urethra;
(3) Instrumental treatment; and
(4) Treatment through the blood stream.

Before treatment is instituted under any of these heads accurate diagnosis is essential—diagnosis of the extent of the involvement of the urethra and its adnexa, no less than diagnosis of the infecting organisms. For this purpose it is necessary not only to look at the amount of urethral discharge and inquire as to pain and frequency; it is also necessary to examine the urine carefully by the three-glass test, to palpate the urethra (for meatal chancre, for instance), the epididymis, and last, and of most importance, the prostate and vesicles.

The more thorough the initial examination the more information is gained and the more is the patient impressed with the importance of attending to, and the more likely is he to carry out, the instructions given regarding his treatment. It is failure to carry out these instructions by the patient, or failure on the part of the attendant to give him proper instructions, that gives rise to many of the early and late complications. Take a simple example: While everyone will exercise the greatest care in asepsis in passing an instrument into the urethral canal, in how many cases is the patient instructed how to practise asepsis or antisepsis before using a urethral nozzle or syringe? Similarly, in how few cases is a patient taught how to wash out the anterior or posterior urethra! Failure to give instruction in these and similar small details accounts to some extent for the discrepancy in the results of treatment of the out-patient as compared with the in-patient, and for the different results of the same general treatment in the hands of different practitioners.

General Treatment.

This aspect of the therapy of gonorrhoea is chiefly of importance during the acute stage. As in all inflammatory suppurating conditions, cleanliness, rest, simple diet, and the efficient acting of all the excretory organs of the body are essential. Alkaline diuretics combined with urinary sedatives are of greater value than any of the more reputed specific drugs, and much less harmful to the general condition. The combination of the sedative action and the mechanical flushing of the urinary tract outwards, as a result of diuresis, by increasing the amount of urine and the frequency of passing it, is the safest and best means of cleansing the tract. There is no appreciable danger in alkalinizing the urine if the drug is not exhibited over too long a period, and on an average seven to ten days is a sufficiently long period over which to induce this diuresis.

There are few, if any, other drugs required in the treatment of any case of gonorrhoea running a normal course. In the complications, however, and during the instrumental treatment often necessary as a result of the action of the gonococcus on the urinary tract, drugs, such as urotropin, salol, boric acid, etc., are of value, but should not be given in doses which will set up urethral irritation. Urotropin is a good example of this, and gr. v to gr. vii, t.i.d., is sufficiently large for almost any case. There are also certain drugs, such as ichthyol, and atropine and opium, which are helpful in prostatic and epididymis complications, while in joint complications iodides are often advantageously exhibited.

Local Treatment of the Urethra.

As with oral medication in general treatment, so in local treatment antiseptic therapy is more indicated in the acute than in any other stage of the disease. The infecting organism is then on the surface and amenable to antiseptics. In the hyperacute conditions, such as epididymitis, prostatitis, and vesiculitis, with their associated pain and high fever, the gross inflammatory condition should be allowed to subside to some extent before beginning to wash out the urethral canal.

Apart from cases with very severe inflammatory reaction, the earlier antiseptic treatment is instituted the better, and this is only natural, as in the early stages the infecting organisms are within reach of the antiseptic. Antiseptics can only act on the infecting organism when they are brought in contact with it; they have little or no action on infections of the submucous tissue or on those of the glands or gland ducts of Littré, of Cowper's glands or duct, or of those of the prostate and vesicles. When one considers the large number of cases in which Littré's glands and the prostatic ducts are involved, it is surprising that in such a large percentage of cases antiseptic therapy alone is relied on to clear up the infective process. This blind reliance on it alone is, without doubt, the cause of many failures in treatment. There is no doubt that with a view to obtaining penetrative power antiseptics are used in too great concentration in urethral therapy, and incalculable harm is thus done to a delicate structure. No increase of strength will increase the penetrative power of the drug, and the congestion set up by the stronger concentration is better attained by increasing the temperature of the more dilute antiseptic.

If the anterior urethra alone is involved, it is not advisable to wash out more than the part affected, and this is certainly easier to teach the patient than the more complicated posterior irrigation. If, however, there is the slightest sign of infection of the posterior urethra, the whole tract should be washed out, if only for the mechanical cleansing and vascularization which it sets up. In the male bladder infections are, in my experience, rare, and their risk and incidence is over-estimated.

In dealing with out-patients the gravity system is, I think, always preferable to the syringe. It is more easily manipulated by the patient, he has his left hand free to help to control the compressor muscle, there is not the same risk of using excessive force, and its bulk is not inconvenient when the syphon method with an ordinary jug or tumbler is used.

A great deal has been attained in the successful treatment of any patient when he has been taught to irrigate efficiently, whether intravesically or otherwise, and the time spent teaching him will repay itself in the lessening of the period of treatment. There are very few patients who cannot be successfully taught to irrigate the posterior urethra by the second or third day. When any difficulty is experienced the prone position or a little 2 per cent. alypin instilled into the urethra will invariably overcome the urethral spasm. The effort to overcome it should never be attained by using force, and it is never necessary to use a head of more than three to four feet to successfully accomplish the process.

The aim and object of irrigation in the early stages is: (1) surface cleansing, (2) antiseptic action, (3) venous congestion, with resulting flow of serum to the part. As the infection ages, irrigation for the purpose of the first two is less required. For the third—namely, the vascularizing of the urethral surface and consequent flow of serum to its surface—the most effective method of attaining this end is gradually to increase the temperature of the fluid from 104° to 110° or 112° F. rather than increase the strength. This temperature is quite comfortably tolerated by most patients, and the end-results of treatment as seen by the endoscope later on are much better than in cases where the stronger and more astringent preparations have been used.

In the stage when threads only are present in the urine and the discharge is only apparent in the morning but does not disappear completely, or when it recurs with slight exacerbations, other methods of treatment than irrigation must be exhibited. Of those in use, I have a preference for suction and dilatation of the urethra, which aim primarily at opening up the tissues and establishing drainage of the many side-tracks of the urethral canal. Subsequent to either of these methods antiseptics can be applied to the urethral surface with much greater effect.

Of the multiplicity of antiseptics recommended there are few if any which give better results than permanganate of potash or zinc, and seldom is any other required in any case seen early. If mixed infection has supervened, a mercurial antiseptic, such as hydrag. oxycyanide, 1 in 4,000, is more effective in getting the condition cleared up. Personally I have a preference for dichloramine-T, 1 in 4,000, which I find less irritating and as potent. A clear solution is preferable in the later stages of the disease, in that in using it one can see the condition of the prostatic secretion after massage by previously running into the bladder by gravity 8 to 10 ounces of the antiseptic lotion. In the occasional case which does not tolerate or react satisfactorily to the permanganates and di-chloramine-T, a silver salt is often effective in lessening the purulent process, and my preference in this group is for albargin 1 in 4,000. It has the advantage that it does not coagulate albumin, and that after being made into solution it can be used warm. This overcomes the difficulty experienced with the other silver preparations, of getting them into the posterior urethra without using force. In addition, it does not cause proliferation of the epithelium. I have not found it an advantage to use the gelatine and tragacanth preparations as recommended by Koll in preference to the aqueous solutions. In resistant cases, and even as a routine, picric acid, in a solution of 1 in 400 to 1 in 200, is an extremely potent germicide, and gives good results when tolerated. In the healing stages of the inflammatory process, when there is no longer gonococcal infection present, but simply a more or less damaged mucous surface, zinc and alum salts are the most efficient remedies we have in helping the urethral surface to regain its tone.

Speaking of local treatment generally, I think that too much stress has been put on antiseptic potency without considering the histology of the urethral canal. We cannot argue on the analogy of what happens in a test tube, and the effectiveness of any drug *in vitro* rarely holds good *in vivo*. There are no side-tracks in the test tube such as one finds in the urethral canal. There is no submucous tissue, no gland ducts of Littré, and no such inaccessible areas as the prostate gland and the vesiculae seminales. An antiseptic to be effective must reach the part, and the harmlessness of a drug for the anatomical elements of the urethra and for normal phagocytosis are much more important for the disappearance of gonococci than its antiseptic properties and so-called penetrative power. There is the additional factor that antiseptics in any concentration may have a harmful effect on the immunizing power locally of the blood serum. Any effort on antiseptic lines alone to discover the ideal means of treating urethritis is, I think, doomed to failure.

Instrumental Treatment.

This leads to the consideration of what additional means we have of helping to clear up an infection, and as in the early stages accurate diagnosis is essential, so in the case which is not clearing up owing to some complication, accurate diagnosis of the complication and of its site is essential. In cases where the organisms have invaded the lacunae or the gland ducts, whether of anterior or posterior urethra, instrumental examination by the urethroscope is, I consider, essential for accurate diagnosis. It may be carried out as soon as the acute inflammatory process has subsided, as evidenced by a clear first urine. It is practically painless, and with little or no damage to the tissues information can be gained which is much more accurate than that gained by the passage of a bougie *à boule* or of a solid instrument and subsequent palpation on it of the urethra.

The accuracy of diagnosis obtained by its use in the anterior urethra is invaluable in indicating the correct line of treatment. In all subacute or chronic cases not reacting quickly to treatment, this examination should be routine. Of the many lesions found "Littritis" and associated infiltrations of the mucous and submucous tissue round the mouths of Littré's gland ducts are the most common. I cannot say that I have found much help in topical applications to the openings of the gland ducts through the urethroscope. There is no certainty that the applying probe does not simply invaginate the tissues in front of it

and the potent antiseptics used certainly tend to cauterize and destroy the surface they touch. The electric cautery is a little, but not much more, effective, and the only cases in which intraurethral treatment through the endoscope is of decided benefit is in the opening up of a periurethral abscess, the removal of a polypus or similar conditions. Its best and greatest use is in diagnosis and in the observation of the effect of treatment. In ordinary Littritis and similar inflammations, reliance should be put more on the suction bougie to open up and drain the infected area so that it may heal from the base. I use the simple instrument devised by Mills, and it exerts an excellent influence on the course of many cases. It acts by Bier's congestion and increases the flow of serum to the part, without in any way destroying the surface epithelium, and is much more effective than the solid bougie in attaining its object of draining the lacunae and gland ducts and much more scientifically correct in its mode of action.

In dealing with infiltrations, and whether seen in the subacute stages of the infective process or later, Kollmann's dilator is more efficient in its dilating action than the solid bougie, and, if used with care, less likely to lead to damage of the urethra. In using both the anterior and the posterior instruments it is wise to have a fine stream of mild antiseptic passing over the stretched mucous surface during the action of the instrument; the appearance in the outflow of blood serum is an excellent guide as to when to stop, and a much better one than the sensations of the patient. Both before and after such urethral manipulations, whether it be suction or dilatation, the surface tissues of the urethra should be washed with a warm mild antiseptic, which, by reason of its heat, will act as a sedative, and by its antiseptic power destroy any bacteria present on the surface. This will prevent, in practically all cases, the so-called catheter fever, and is of great importance in the treatment of stricture.

The value of instrumental treatment in posterior urethritis *per se* is more limited. In such infections the whole genito-urinary tract is opened up to possible infection, and in a large percentage of cases both the prostatic and ejaculatory ducts and the gland tissues of the prostate and of the vesicles are infected. In such cases local antiseptics are of little use except for their vaso-dilator action and the consequent venous congestion they give rise to. Suction is not so effective and dilatation is not so often called for. In practically every case of posterior urethritis prostate and vesicles are more or less involved, and palpation of them and subsequent massage to empty the glands and open up the gland ducts is one of the most valuable methods we have of treatment, and is an essential in the later stages of every case of prostatic, vesicular, or epididymis infection. It acts in three ways: (1) It establishes drainage, (2) it increases the blood supply, (3) it gives the patient a dose of auto-vaccine.

As with instrumentation, prostatic massage should not be performed until such time as the acute inflammatory process has subsided and the urines are clear in the two- or three-glass test. To massage the prostate and vesicles satisfactorily a gentle stroking from without inwards and downwards is the method to be adopted rather than severe pressure, and the palpating finger is the only instrument which is of any use in doing it and the only method of gaining accurate information of the consistence and resilience of the affected part; eight to ten ounces of urine or of a clear antiseptic should be present in the bladder while it is being performed. The operation is much easier for the attendant and more comfortable for the patient and much more accurately done in the knee-elbow position, and, if the bladder is lifted up by the left hand pressing suprapubically, the emptying process is better accomplished. Examination of the urine passed subsequent to the massage or of the antiseptic if a clear one is used, gives valuable information as to the condition of the part, and the operation should be followed by a thorough intravesical irrigation with a mild antiseptic.

Prostatic massage hastens cure in cases of posterior urethritis, and makes the possibility of a residual focus of disease less likely, and in practically all cases improves the general health of the patient. It should be a routine in the treatment of every case of urethritis in the later stages, and should be persevered with until the prostatic urine is clear and free from pus cells. Of the other complications of gonorrhoea, the treatment of epididymitis has probably given rise to most controversy. Operative interference in the shape of injections of electrargol, 1 to 2 c.cm., is effective in aborting the condition if the case is seen early, but of little use except to ease pain in the established case. The onset of epididymitis is not a contra-indication to posterior irrigation, except during the twenty-four hours when the pain is acute, but the irrigation should be very gentle, and no force must be used to overcome the compressor muscle. Where the case is of some duration better results are, I think, attained by open incision, as in Hagner's operation, and puncture of any oedematous or purulent foci on the surface of the epididymis after incising the fibrous coat. Aspiration alone is of little therapeutic value, apart from temporarily easing the pain.

Epididymitis and prostatitis are excellent illustrations of extension of urethral infection in which the value of antiseptic therapy is limited, and in which the patient's recovery is dependent more on his own resistance. Apart from indiscretions on the part of a patient, a lowered resistance to infection or a very virulent infection may give rise to any complication, and in these and in metastatic complications such as arthritis, vaccines, serums, and other preparations have often been employed. In the more acute conditions, such as prostatic abscess which is accompanied by an acute toxaemia, gonococcal serum may temporarily help to tide over the acute process, but its effect is not lasting, and results are much better in the general run of cases from the use of vaccines.

Vaccine Therapy.

The conflicting results obtained up to now in vaccine therapy by various workers are, I think, more due to faulty methods of administration than to the failings of the therapy. There is no branch of treatment which is less taught in medical schools. Neither the pathologist, the bacteriologist, or the teacher of clinical medicine or surgery seems to think it comes within his province, with the result that most men are at first groping in the dark as to dosage and intervals between successive doses, and have to rely on the bacteriologist, who makes the vaccine and who never sees the clinical condition, to suggest a method of usage. No matter what the infecting organism, there are rarely two cases which will tolerate with advantage the same dosage, and each case must be studied as a separate entity. A vaccine alone will rarely cure any case, but in combination with careful local treatment it will in the large majority of cases improve the general tone of the patient, hasten the rapidity of the healing process, prevent the onset of complications, and give a more certain and lasting cure.

In gonorrhoea there are few cases of spontaneous cure, and the serology of the condition points to the fact that the gonococcus is slow to produce an immunity response in the body fluids. A good antigenic vaccine will stimulate and produce this response more quickly if one can avoid that period of increased sensitiveness which precedes the protected condition set up by the vaccine. In using polyvalent stock vaccines and autogenous vaccines this is attained by beginning with a low dosage and repeating the dose in gradually increasing small quantities, according to the clinical manifestations. In using detoxicated vaccine it is attained by the removal of the toxic material by chemical means from the organism during the making of the emulsion. On account of the limitation of dosage necessary with stock vaccines to avoid severe reactions, the immunity response cannot be stimulated so quickly or in so great amount as with detoxicated vaccines.

During last year, over a period of six months, in treating a series of 100 cases with a new fat-free vaccine, recommended to me by Dr. Wang, and prepared for me by the Royal College of Physicians laboratory, and at the same time treating a series of 200 cases on parallel lines with detoxicated vaccines, the rapidity of cure, the shortening of the acute stage, and the prevention of complications, were more marked with the latter vaccine, and it was distinctly the superior of the former in all types of case. The reactions with the fat-free vaccine, and especially the local and general reaction, are in some cases severe. I have had a similar experience with ordinary stock vaccines, both in reaction and in the end-results of treatment.

In using autogenous vaccines there is never the certainty

that the strain from which the vaccine is made is antigenically potent, and there is the drawback that valuable time is lost in waiting for it to be prepared. In cases of mixed infection, however, I have obtained the best results by combining detoxicated gonococcal vaccine with an autogenous vaccine of the secondary organisms present. This is chiefly noticeable in metastatic complications and in female patients, where a mixed infection is common and where antiseptic therapy is often unavailing. A point of some importance in considering the dose to be administered is the locality of the lesion. An acute prostatitis or salpingitis will not tolerate the same amount as a case of arthritis or anterior urethritis.

After the initial dose, which is usually a tentative one, the local, focal, and general reactions, and the general well-being of the patient are the best guides to further dosage, and should at all times be preferred to any rule-of-thumb method of automatic increase at fixed intervals. Severe reactions are an indication to decrease, or at any rate not to increase, the previous dose and to lengthen out the period between doses. Ten to twenty millions is a good average to start with in using stock or autogenous vaccines; one thousand to three thousand millions in the detoxicated. The earlier the vaccine is used the more effective it is, and even in cases which are seen early enough to be aborted the indication is to exhibit vaccine therapy at once.

Intramuscular injection is preferable to subcutaneous in the out-patient, in that it gives rise to much less local reaction and is more rapid in its action; the subcutaneous method gives perhaps a more sustained action, but local stiffness and pain are at times severe and interfere with the patient attending to his work.

Many non specific substances have been used in the treatment of gonococcal infection through the blood stream, but in my experience with all of them the results are irregular and uncertain. Intramine, recommended by McDonagh, is variable in its action, but in combination with vaccines gives at times very good results, especially in cases of arthritis. It seems to intensify and implement the action of the vaccine. I have not been able to convince myself of the good effect of any of the other colloidal preparations recommended by this authority. Sulpharsenol, as recommended by Levy-Bing and Duroeux, in doses of 0.12 to 0.3 gram intravenously or intramuscularly, is helpful in cases of epididymitis and prostatitis, but is more erratic in its action than vaccines, some cases doing extremely well and others showing little or no change. Electrargol and luargol used intravenously give quite as good results, the former in doses of 5 c.cm. intravenously, the latter of 0.05 to 0.1 gram. Injections of foreign protein, such as non-specific serums and milk, only give results when the thermic reactions produced are intense.

I do not think we are as likely to arrive at the ideal treatment along the lines of any of these non-specific methods as we are by perfecting our methods of preparing and administering vaccines. Vaccine therapy is superior to protein or chemo-therapy in all stages of the disease, and of the vaccines available those which have been detoxicated are most active therapeutically. The only successful method of eliminating the gonococcus from the deeper tissues and the many side-tracks where it is certainly inaccessible to antiseptics is by increasing the antibody response.

Numerous workers in America, on the Continent, and in this country, Thomson, Dixon and Priestly, and Magner, have so perfected the complement fixation test as to be able to estimate this antibody response, but few of these workers are agreed in the estimate they form of what this response means in relationship to cure. In my experience a rapidly increasing and high antibody response seen serologically is coincident with rapid clinical improvement, and the test is of value in diagnosis, in control of the administration of vaccines, and in the test of cure.

If the ideal treatment is to be attained, I am convinced that it will be along the lines I have indicated, by the use of mild antiseptics applied to the inflamed part in combination with the administration of a strongly antigenic and specific vaccine; but the clinician must have working with him a competent bacteriologist or serologist to help in working out more accurately the methods of administering specific vaccines and of controlling their actions.

THE STANDARD OF CURE IN GONORRHOEA.

BY

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Introduction.

THE title of the subject about which I have been asked to speak is a comprehensive one. I feel, therefore, free to select those aspects of my allotted theme which appear to be of immediate importance, though others may be associated with a major degree of literary and scientific interest.

Although I am invited to address myself to a section of this Association which includes many experts, I am hopeful that the greater part of my audience are general practitioners. I can make no claim to advance anything which, by reason of originality will prove to be of clinical value to the expert venereologist. I speak primarily to those practitioners who, although they have not elected to devote themselves to the study of venereal disease, are yet liable to be called upon to attend those who suffer from either of its manifestations. My primary theme is that the bulk of the profession still fail to realize the urgent need of applying the most stringent "standards of cure" in respect to every case of gonorrhoea, and that this failure is a potent causal factor in the production of much preventable disease. I append notes and suggestions concerning the final testing of men and women who have suffered from gonorrhoea.

The Failure to Realize the Need of a High Standard of Cure.

Much literary, journalistic, and oratorical energy has been devoted to impressing upon individuals the necessity of seeking medical treatment when suffering from gonorrhoea. Schemes have been drawn up embodying the modern conception of ideal standards of cure, and much attention has been given to the perfecting of the technique, bacteriological and otherwise, which is involved. The potential advantages, however, which otherwise might accrue from encouraging the public to seek treatment, and from the evolution of high standards of cure, will be largely discounted if general practitioners do not realize the necessity of subjecting every patient who has suffered from gonorrhoea to the most exigeant tests. I believe that most practitioners fail to realize their responsibility in this respect, by reason of the fact that but little effort has been made to impress its importance upon them.

I hold this belief on the following grounds: If it is remembered that instruction in venereal disease has not yet been made a compulsory subject in the medical curriculum; if it is also remembered how insufficient has been the endeavour to inculcate a sense of responsibility amongst practitioners, their lack of realization is not surprising. If it were generally known that gonorrhoea is reputed to be accountable for some two-thirds of all diseases of women, for so-called gonococcal rheumatism and for sterility in both sexes, it is inconceivable to think that practitioners would refrain from subjecting all patients to the most rigorous tests. Again, is it conceivable that any practitioner who knows that the larger percentage of cases of blindness in children is due to gonorrhoea, and is also acquainted with the large amount of reinfection which results from fallacious "cures," would refrain from utilizing the most searching tests?

Experts know to what an extent the community suffers, but I am afraid that their brethren in general practice do not. If the latter realized the statements of the Royal Commission on Venereal Diseases, if they were aware that it has been computed that some 50 to 60 per cent. of the male population have suffered from gonorrhoea, if again they were aware of the economic waste wrought by this disease, would they spare any efforts to secure safety for their patients and ultimate economy for the community? I say emphatically that no conscientious practitioner would be so lacking in altruism as to neglect this obvious course.

Every Patient must be Subjected to an Equally Rigorous Examination.

I admit that there is an increased tendency to set up a higher standard of cure than obtained formerly, but there is no doubt that a lack of consistency prevails. If a

patient be about to marry, or is already married, or if there is the possibility of the involvement of a medico-legal factor, the necessity of employing a series of rigorous tests is frequently realized. Compare, however, the position of the bachelor. Usually he is dismissed as cured without being subjected to the more stringent tests that are enforced when the patient is or is about to become a husband. Why should this selective treatment be meted out to the married man or the matrimonial candidate? Because his wife that is, or is to be, must be duly safeguarded. It is a terrible fate for a married woman to develop a pyosalpinx or other serious complication contracted from an infected husband. But it is more serious if many women should thus suffer, and without undue cynicism we must confess that such indeed will frequently be their fate if the bachelor be prematurely discharged as "cured."

Alleged Objections against the foregoing Suggestion.

I am aware that objections will be advanced against the materialization of the preceding suggestion.

(*a*) It will be submitted that formerly all cases have been, and now many are, discharged without undergoing a rigorous series of tests, and that without any general ill effects. I agree that probably many of these cases were quite cured and that no danger accrued. But it is important to realize that we have no statistical data as to the number of those who were not cured and who infected others. We do know from our experience of gonorrhoeal ophthalmia, pyosalpinx, gonococcal rheumatism, etc., that many patients who are discharged as cured develop sequela of serious importance. Moreover, it is not a question of numbers. Even if 90 per cent. of cases were cured, and all symptoms and signs had disappeared, that is no justification for allowing the remaining 10 per cent. to return to the world, liable to undergo suffering in themselves and free to inflict injury upon others. If such a policy were adopted with regard to any of the infective fevers, the crudeness, cruelty and tragic absurdity of such a proceeding would be realized at once.

(*b*) An additional objection will be advanced that the tests present such difficulties as will preclude the practitioner from carrying them out. With this objection I will deal later.

(*c*) It will be stated that the procedure will involve an expenditure of time on the part of the practitioner which many patients who are unable to attend a clinic will not be able to afford. In these conditions the medical man must be recompensed by the State. It is in the interests of the community that the amount of gonorrhoea be reduced, therefore such tests must be carried out, whatever be the expense entailed. The adoption of such a policy will eventually redound to the eugenic and economic welfare of the nation.

Suggestion of how the Information can be Spread.

If we accept the conclusion that every patient should be thoroughly tested before he or she can be regarded as cured of gonorrhoea, we are forced to promulgate our belief, since it is one of vital importance to the community. Although there is an improvement in the attitude of many practitioners in this respect, a necessity exists for widening and deepening the professional outlook. The necessity for carrying out such tests should be promulgated with such clearness and persistence as would speedily result in every practitioner instinctively regarding these final tests as being equally necessary as the clinical examination and the Wassermann reaction in respect to syphilis. The practitioner who discharges patients without subjecting them to such an examination and series of stringent final tests should be regarded as guilty of professional negligence. If it is wrong that a patient should be allowed to leave a venereal clinic without a thorough examination and tests, it follows that no private practitioner should discharge a patient as "cured" without subjecting him to similar measures. As more medical men act as assistants in clinics, the leaven of knowledge will gradually enlighten the profession. This will, however, take too long, and much suffering will be inevitable if no other steps are taken.

THE FINAL TESTS.

The recollection of some elementary points may help the practitioner to realize the nature of his task.

(*a*) His object is to determine whether there are any gonococci present in the patient. Gonorrhoea is generally confined to certain portions of the genito-urinary tract. At other times it assumes a metastatic form. When dealing with either variety it is necessary to make the most searching investigation of the genito-urethral tract and its adnexa. It is well to remember that this tract has many diverticula, whose entrances are extremely narrow, a fact explaining the facility with which these canals may become sealed by morbid accumulations.

(*b*) Certain of these diverticula are of a ramifying nature and the channels which connect their distal and proximal portions are tortuous. Examples may be found in the deep urethral glands, the vesiculae seminales, and, to a minor extent, in the prostatic tubules.

(*c*) It is necessary to remember the danger of subjecting a patient to the final tests without having given him or her efficient provocative treatment. I fear that sometimes, when practitioners have brought their patients to an apparently satisfactory condition, they at once proceed to the final tests. The results may be superficially satisfactory, but both patient and practitioner are living in a fool's paradise. After long treatment the probability is that most micro-organisms will have been eliminated, excepting those which are imprisoned in some of the diverticula. It follo..s, therefore, that if a test be instituted immediately after treatment, the chances of detecting the few remaining organisms will be remote, inasmuch as they will probably be hidden in some distant or occluded recess. It is therefore necessary to adopt a provocative course which will stir the latent diplococci into activity. Two results may ensue: (1) That they emerge from their lairs, (2) that they multiply.

Naturally the greater the number that are present the greater the chance of detecting some of them. Hence the importance which exists for postponing the final tests until a considerable time after the last treatment, during which interval the patient will have been subjected to a series of provocative treatments.

Method of Testing: (a) Introductory.

When the practitioner believes that his patient is cured he should cease therapeutic treatment for at least ten days. During this time provocative treatment should be administered. Often provocative measures are not adopted as frequently or thoroughly as is necessary to arouse any lingering micro-organisms. It may be objected that it is justifiable to apply such treatment as will conduce to any superficially placed gonococci evidencing themselves, but that the application of such stringent measures as will have the effect of exorcizing the gonococcus from its most cryptic lair is unnecessary and harmful. It will be urged to be unnecessary because if a few organisms be present the patient's resistive power will suffice to overcome them. It will be regarded as harmful because if the dormant organisms be awakened they may reinfect the patient and produce some serious complication not previously experienced. I would reply that our aim is to ensure that the patient is not harbouring any organisms which, if released now, will probably not produce reinfection, whilst if liberated later, when immunity has disappeared, they will almost certainly have that effect.

We can imagine a case in which there is a complete absence of any symptoms or signs suggestive of the presence of gonococci. A bacteriological and microscopic examination of the necessary secretions fails to discover any gonococci. One or more insufficient tests are carried out and result in the same negative findings. Some would conclude that it is improbable that any gonococci are present. Notwithstanding this apparent freedom from infection it is possible that organisms may be imprisoned in some primary or secondary diverticulum. Such a hiding-place may be found in some of the small diverticula of the urethra, of the prostate, of the ampulla of the vas, or of the vesicles, or the glands of Bartholini, or in Skene's tubules, etc. The organisms may remain in a state of malefic quiescence for months or for years. When eventually the small plug which obstructs their tubular habitat is removed the gonococci emerge with virulent results. The application of measures of provocation can go far to exorcize the inimical organism. If these are not adopted a male patient may pay the penalty by suffering from an attack of gonococcal rheumatism, iritis, or epididymitis, especially

if the lingering organisms are in the vesicles. The female may pay even a higher price for her practitioner's carelessness.

(b) A Course of Provocative Treatment (Male).

1. About five days after the patient is believed to be cured the prostate and vesicles should be massaged. This procedure is sometimes followed by a discharge the result of autoinfection. I consider this provocative measure fully deserves the importance assigned to it by Dr. Malcolm Simpson.

2. All treatment should then be suspended for ten days, and during this time the patient should consume alcohol. If there is any objection to submitting to this advice, a substitute should be advised in the form of stone ginger beer, or ginger ale, both of which beverages possess a provocative value, and the patient should be instructed to apply himself to a diet which is highly seasoned and redolent of sauces and salinity.

3. If at the end of the provocative period no untoward results have accrued, a large sound should be passed and the anterior urethra massaged over it. After the removal of the sound the prostate and vesicles should be massaged, and the patient should pass urine.

An instillation of silver nitrate 10 grains to 1 oz., should be administered and the urethra painted with a solution of silver nitrate, 10 grains to 1 oz. I hold that these provocations will generally oust any lingering organisms,* but as an additional provocative agent a gonococcal vaccine may be administered. If this latter procedure is carried out it should be arranged that the reactionary period should occur a few hours after the application of the foregoing measures. The patient should now be subjected to the series of tests mentioned below, the second one being carried out after an interval of a week. If no gonococci and no pus cells have been found as the result of either the first or second test the patient may then be discharged as cured. If, however, pus cells are found as the result of the first or second test, the patient must be subjected to a third one. Then if no gonococci are found he may be discharged. Provided that the clinical examinations (including the urethroscopic) have been efficiently carried out, experience shows that a patient can be discharged even if he still possesses pus cells. We must remember that some individuals are normally "purifers" or carriers of pus. It is well for patients to exercise alcoholic and sexual abstinence for a month after they have been discharged. It should be pointed out that such a period of quiescence is advisable in order to allow the tissues to return to their normal condition after the irritative measures to which they have been subjected, and that it is in no way associated with suspicion as to the validity of the cure.

Autoinfection the Result of Provocative Measures.

As a result of the provocative treatment administered to the prostate, vesicles and urethra after the cessation of treatment, it is possible that there may be a "flare up" of the hitherto quiescent disease. If no untoward results ensue the final tests may be looked forward to with hopefulness.

Scheme for the Final Tests (Male).

1. The patient presents himself, having retained his urine all night, or, if this is impossible, for at least five to six hours. The meatal orifice is cleansed with sterilized distilled water. Digital pressure is exercised along the urethra from the perineum forwards, and a specimen of any secretion is obtained with a platinum loop. A film is made from this specimen and a culture tube inoculated.

2. The patient passes the first and third portions of his urine into a sterilized jar. The intermediate portion of urine is not required.

The presence of threads or flakes must be noted; their shape, size, colour, consistency and disposition, whether floating or otherwise, must be observed. A bacteriological and microscopical examination of these should be carried out by the bacteriologist.

3. In the procuring of the prostatic and vesicular beads the patient rests upon his knees and hands. The method of massage is most important: The finger should exercise a firm degree of pressure upon the organ from its periphery to its apex; thus the contents of the straight portion of the prostatic tubules are expressed into the urethra. A process of gentle kneading and of rotary massage should now be carried out, followed by final pressure in the direction first mentioned. This will tend to dislodge the contents of any tortuous portion of the tubules or glands into the straighter portion, whence they are more easily projected into the urethra.

The vesicles should be massaged from above downwards and inwards, this being the direction of the main vesicular channel. A rotary and kneading action should be initiated, followed by pressure in direction of the long axis of the organs. A glance at a diagram of the tortuous ramifications of the vesicles will show how impossible it is to empty the contents of these organs by pressure exercised in one direction only. I am convinced that imperfect massage of the vesicles and resultant failure to evacuate their contents is a frequent cause of fallacious verdicts of cure. If the practitioner is suspicious concerning one or both vesicles, it is desirable that their contents be obtained separately from that of the prostate. Care should be taken that massage should be applied to the prostate only, the secretion of which should be milked forward along the urethra to the meatal orifice and specimens prepared. The anterior and posterior urethra should be irrigated with sterile distilled water, some of which should be left in the bladder. The vesicles should now be thoroughly massaged and their contents pressed forward along the urethra, a film made, and a culture tube inoculated. At times the vesicular contents take a retrograde course into the bladder, then the distilled water be examined for the secretion.

A Warning Regarding Prostatic Massage.

There is a point associated with obtaining the prostatic secretion concerning which I would utter a warning. There are some patients from whom secretion can be obtained upon the slightest degree of massage. Such a facile tendency may lead the practitioner into serious error. We will imagine that the left side of the prostate is massaged, and that a generous flow of secretion ensues. Inasmuch as a bead is secured no further massage is undertaken. The specimen is examined and found to be free from gonococci, and devoid, or relatively devoid, of pus cells. At the next test the same part of the prostate is massaged, a similar result follows, and the patient is discharged as cured. Before long he will return to his medical man, or possibly go elsewhere, complaining that he is still uncured. Another examination is made. The prostatic fluid is now found to contain a large number of pus cells, and possibly gonococci. The explanation is a simple one; the side of the prostate which was originally massaged was free from gonococci and pus cells. The opposite side was still abnormal, and had it been massaged at the first test the secretion would have been found to contain many pus cells and some gonococci. The moral, which for the sake of beginners I would enunciate, is that however easily prostatic fluid may be procured as the result of massaging one side only of the prostate the whole of the structure must be thoroughly manipulated, and, the resultant fluid having been mingled, the final specimen will represent an average of the entire secretion obtained. Neglect to massage as much of the prostate as possible will go far to account for those variations in reports which are received from bacteriologists.

I believe that the foregoing statement possesses a further moral. No orderly, no one excepting an experienced practitioner, should be allowed to undertake the task of procuring specimens for the final tests.

4. Additional urethroscopic examination: Before the patient was subjected to the course of provocative treatment he should have been thoroughly examined by the urethroscope and not allowed to undergo the tests until any abnormality of a possibly infectious nature had received adequate treatment. If there is the slightest suspicion as to the presence of any infected gland or sinus opening into the anterior urethra, a urethroscopic examination should be made after the foregoing tests and a specimen obtained. The most effective method of procuring this is by Mr. Wyndham Powell's new operating cannula.

Complement Fixation Test.

I am inclined to think that if a thorough series of efficient clinical, bacteriological, and microscopic examina-

* Provided that the vesicular or common ejaculatory duct is not obstructed by a muco-purulent plug, but if such a condition be suspected there is no object in carrying out tests whilst further treatment is still required.

tions are carried out there is no necessity to utilize the complement fixation test. Although my experience is a limited one, the results of this test cannot be compared to the comprehensive ones of the foregoing in respect to efficiency, and in every case it should, at present, be regarded as an adjuvant, and not in any sense as a principal means of determining whether a patient is still suffering from gonorrhoea. In cases of metastatic gonorrhoea I believe that it is of greater value, and without placing absolute reliance upon it, I would advocate the wisdom of employing it in such cases.

Final Tests in Women.

The general procedure in respect to provocative treatment is of a nature similar to that which is carried out with regard to men. No treatment should be administered for at least ten days before a test is made. Both the cervical and urethral canals should be dilated. The patient should be subjected to the provocative application of silver nitrate to the cervix, urethra, the glands of Bartholin, and Skene's tubules.

The question of vaccines is a difficult one. If one or both tubes are involved, the administration of vaccines may so light up a latent infection as to produce serious trouble. Great consideration is necessary to decide whether it is justifiable to take this risk. I believe that if there be grounds for suspicion it is wiser to adopt palliative or even surgical treatment during the quiescent stage rather than to expose the patient to the risk of an acute salpingitis flaring up with the possibility of an unsuccessful surgical operation. If there is no tubular involvement, then vaccines may be administered, although if the introduction of silver nitrate, etc., has been efficiently carried out they are probably superfluous.

Scheme of Final Tests (Female).

1. The vulval region, and especially the meatus urinarius and the orifices of Bartholin's ducts, should be thoroughly cleansed with sterilized water. The posterior wall of the urethra should be gently massaged (per vaginam) in order to express secretion. A platinum loop should be introduced into the urethra, and from the specimen of secretion obtained a film should be made and a culture tube inoculated.

2. Pressure should be exerted along the ducts of Skene and Bartholin and a specimen obtained by means of a pipette. The patient should micturate after a retention of at least six hours (see note on obtaining specimen of urine in males).

3. The uterus should be grasped bimanually and pressure exercised downwards towards the cervix.

4. A speculum is then introduced and the fornices and external surface of the cervix should be cleansed with sterilized distilled water. The cervix should be subjected to some form of massage and a film made and culture tube inoculated from the resultant secretion.

More Tests required for Women than for Men.

Owing to the greater tenacity or secretiveness of the gonococci when lurking in a feminine habitat it is not advisable to discharge a woman as cured after two or three tests. If she has passed these, no treatment should be given for two or three months; then after another provocative course a second series of tests should be made. If she passes these and no suspicious condition of the tubes is found she may then be discharged.

Objections against the Foregoing Tests.

Criticism may be directed against the foregoing measures by reason of the time required to carry them out. I would state that, with the exception of the urethroscopic examination, the whole procedure can be carried out within fifteen minutes. Even if considerably more time were necessary this would not afford an argument against the utilization of methods which are necessary to an exhaustive test. The results of incompetent examination may be so serious, and even dangerous, that nothing less than the most stringent measures should be employed.

Bacteriological Examination must be Carried Out by Experts.

It is of the utmost importance that the microscopic and bacteriological examination should be carried out by an expert. The practice which sometimes obtains of these examinations being made by practitioners possessed of but slight experience in so highly technical procedures is to be condemned.

The Relative Values of Clinical and Bacteriological Examinations.

I am aware that a section of venereologists place but small reliance upon the bacteriological and microscopical examination as constituting a necessary factor in testing patients before discharging them as cured. Their contention is that all necessary information can be obtained by skilled clinical examination and observation. On the other hand, there are those who are so influenced by bacteriological and microscopical methods that they are in danger of employing these in a manner verging on the mechanical, and through a lack of experience are tempted to evaluate clinical examinations very lightly. I believe we may here learn a lesson from the annals of syphilis, which tell of the brilliant results which were obtained by experienced clinicians before spirochaetes were thought of and when the Wassermann reaction was unknown. Just as competent syphilologists now regard the clinical and laboratory findings as complementary in relation to the investigation of syphilis so is it equally rational to cull and judicially interpret all information which can be obtained from these two provinces in respect to the determination of the cure of gonorrhoea.

CONCLUSION.

I would wish to state in conclusion that I believe the foregoing series of tests to include none that are unnecessary and, I hope, all that are needful. Inasmuch as I hold that the present-day schemes, as submitted by the National Council for Combating Venereal Diseases and the Ministry of Health, evidence a vast advance on their insignificant predecessors, so do I believe and hope that those which I have now suggested will be rendered obsolete in the immediate future by the advent of methods even more searching in their nature and convincing in their results.

I must offer my thanks to Mr. Hugh Lett, F.R.C.S., Director of the Genito-Urinary Department, London Hospital, for his permission to make use of the opportunities afforded me in his department, and also to Dr. Malcolm Simpson, with whom I collaborated in respect to an article on a "Method of Testing" published in the *Lancet*.

DISCUSSION.

Dr. T. W. BUCKLEY (Nottingham) congratulated the readers of the opening papers on the interesting points they had raised for discussion. He complained that great difficulty was experienced in interpreting pathological reports. Pathologists were often of little aid to the clinician. They were fond of sitting on the hedge and of returning a report to the effect that Gram-negative diplococci resembling gonococci were or were not present, as the case might be. He wished that they would make a plainer statement, and not fight shy of the word gonococcus.

Captain BAWDEN, R.A.M.C. (Military Hospital, Newcastle), asked Dr. Lees what he meant exactly when he said, "In order to get vaccines to act efficiently we must open up the tissues and vascularize them." Dr. Clarkson had said that he used silver nitrate solution for provocative action in the strength of 5 to 25 grains per ounce. He (Captain Bawden) thought this much too strong, 2 to 3 grains per ounce being sufficient. Referring to the standard of cure in gonorrhoea, Dr. Clarkson mentioned that a patient should not be considered cured until he had shown several negative smears, but he himself considered that this index of cure was apt to be misleading. Captain Bawden mentioned the case of a patient who contracted gonorrhoea two years ago. He thought he was cured, but found the discharge returned after imbibing alcohol, about January, 1921. He went to a doctor, who examined a smear and said he found no gonococci. The case then came under Captain Bawden's care. A smear was examined carefully for twenty minutes and no organisms found. A culture was made, and on examination the gonococcus was found in pure culture. Captain Bawden held that in the case of chronic gonorrhoea a patient could not be said to be cured until a culture failed to show the presence of gonococci.

Dr. GORDON BATES (Canada) congratulated the readers of the opening papers on the successful way in which they had dealt with their subjects. He gave a brief summary of the methods that had been adopted in Canada for the combating of venereal disease, and described the working of a modified form of compulsory notification.

Lieut.-Colonel RITCHIE, R.A.M.C. (representing the League of Red Cross Societies at Geneva), spoke of the work which was being undertaken on the Continent. He stated that instruction in venereal diseases was now compulsory in Swiss universities, as was also the setting of a paper on this subject in the final examination for qualification.

Mr. KENNETH WALKER (London) said that he did not intend to contribute to the discussion beyond asking Dr. Townley Clarkson whether he would not add the riding of a motor bicycle to the list of provocative measures that might be adopted in deciding whether a patient were cured or not. He (Mr. Walker) had found cases of chronic prostatitis fail before such a test, even after they had successfully survived a season of fox-hunting. If any experience were likely to cause a recurrence in an uncured prostatitis it would be a fifty-mile ride on a motor bicycle over bad roads.

Colonel L. W. HARRISON (President of the Section) said that he was sure everyone present would leave the meeting with a higher ideal in the management of gonorrhoea thanks to Dr. Lees and Dr. Clarkson's papers. He could not help thinking, during the reading of those papers, of the remarks of his very superior officers which had often greeted his efforts to improve the treatment of gonorrhoea in the army, that "we got just as good results in the old days with a syringe as you seem to be getting with your new-fangled methods." Such a remark had always made him ask how it was known that the results were just as good; were the patients tested for cure, and how many came back with a relapse a few days after discharge from hospital? But he had never had a satisfactory reply.

Again, he could not help thinking, whilst Dr. Lees described his meticulous technique of treatment and Dr. Clarkson his elaborate test of cure, how unnecessary all this trouble ought to be considering how easy it was to cure gonorrhoea if the patient commenced treatment before the gonococcus had buried itself in the depths of the mucous membrane. It ought to be as instinctive in a male patient to take alarm and seek treatment the moment the first sign appeared as to jump when he was kicked, and the people who would eventually get that lesson driven home to the general public were the family physicians of the country. Without them we should achieve little, and gonococcus carriers would continue to spread gonorrhoea until we discovered a specific. The whole-hearted help of the general practitioner ought to be given in this struggle against gonorrhoea, and until it was given the disease would continue to be a reproach to the profession.

Dr. Lees would not be surprised when he joined issue with him on the question of confining the irrigation to the anterior urethra until signs of posterior urethritis appeared. Everyone knew that the moment to attack gonorrhoea was the moment when the infective material was planted on the surface. That was axiomatic. He would like to ask Dr. Lees by what test he detected the moment when the gonococcus was first planted on the posterior urethra. He himself knew of none. It was for this reason, as well as because of the superior flushing effect of a stream of lotion propelled by the bladder, that he preferred to allow the solution to enter the bladder just as soon as the sphincter could be coaxed into relaxing.

He was impressed by the value of cultural methods in diagnosis and test of cure. A microscopist was very apt to give up the search much too soon, and a culture was a good safeguard. He himself employed the complement fixation test, and he would certainly feel very chary of passing a patient for marriage who gave a positive reaction. He would like to suggest that the prostate be massaged about ten days before the blood test, as in some cases a doubtful reaction before the massage had been followed in his hands by a definitely positive about ten days later. He supposed that, provided this had not been a coincidence, it must have been due to the autoinoculation resulting from the prostatic massage.

In reply to the discussion, Dr. DAVID LEES said that before he replied in detail to the various aspects of the discussion on his introductory paper he would like to take up one or two points raised by Dr. Townley Clarkson in his very interesting and comprehensive paper. He emphasized two important points: first, that it took a considerable time to test the patient, and secondly, that it demanded a considerable degree of capability on the part of the clinician. It was important to remember both, and he stated that qualitative results were much more important than quantitative. In the clinic under his charge little or no stress was put on rapidity of cure as compared with certainty of cure, and cases were kept under observation for three to six months after apparent clinical cure. He was extremely glad that he had emphasized the question of the importance of thorough prostatic massage. He would have preferred him to emphasize even more than he did the importance of urethroscopic appearances, and especially the dilatability of the urethra. He could not, however, agree with him on the strength of the silver nitrate which he instilled into the urethra as a test of cure—namely, 5 grains to 1 oz., increasing up to 20 grains to 1 oz. He stated that it was only stimulating, but if one considered that the urethral mucous membrane was as delicate, if not more so, than that of the conjunctiva, one must hesitate in using this concentrated solution, and he thought that we had other less destructive methods, other more certain methods of testing for cure, which were less destructive to the tissues which they were trying to heal. He also considered that in the treatment of the female it was essential that the clinician should have a knowledge of gynaecology and be able to co-operate with the gynaecologist in consultation, rather than to hand over these cases completely to the gynaecological surgeon. Take, for example, a case of pyosalpinx, which starts as an endocervicitis; the removal of the offending tube, and, it might be, ovary, did not cure the gonococcal infection. One might as well say that the removal of the primary sore would cure syphilis, since such a case after operative treatment should certainly be under the care of the specialist in venereal diseases until the whole infective process was cleared up.

He would associate himself with the President in welcoming the very interesting statement from Dr. Gordon Bates as to the steps being taken in Canada to deal with venereal disease. He quite agreed with him that the preventive point of view was the important one and that a great deal could be done by the social worker attached to the clinic. He would welcome the adoption in this country of the modified system of notification, which, while it put a powerful instrument in the hands of those in charge of treatment, did not interfere with the liberty of the patient who carried out the instructions he was given. Dr. Buckley mentioned the difficulty he had in getting a definite report from the pathologist, and in this connexion he thought it was an advantage that every person in charge of centres should do a certain amount of clinical pathology, and, in doubtful cases, examine smears of his own patient. As he stated, Thompson's detoxicated vaccine was of decided value in subacute and chronic cases, the preparation containing secondary organisms assisting and making more certain the cure. He had found in his work that pure detoxicated vaccine was quite as useful in the acute cases as that containing secondary organisms; in the chronic and in some of the very early cases it was a valuable adjunct in abortive work. The cases of *Bacillus coli* infection which Dr. Buckley mentioned were not always, he thought, secondary to a gonococcal condition, and, although difficult to treat, very often reacted to antiseptic therapy supplemented by the administration of an autogeneus vaccine.

Colonel Harrison had joined issue with him on the question of anterior irrigation only as against posterior irrigation in cases of anterior urethritis, stating that the posterior irrigation gave a better wash out, and asking on what grounds one could tell that the infection was confined to the anterior urethra only. He quite agreed with him that the two-glass test was not accurate; the three-glass test was more so; the age and severity of the infection were helpful in diagnosis, more helpful still was the condition of the prostate and vesicles, and the absence of frequency and urgency of micturition. In his own experience the time and the effort taken to teach a case of anterior urethritis how to irrigate into the bladder, unless

the irrigation was done by the surgeon himself, was very apt to lead to force being used, and to set up, if this force were used, complications which would not arise with anterior irrigation. This was especially so with the out-patient who was using a hand syringe, and it was on this account that he had advocated the gravity method at a height of two to three feet for both anterior and posterior work; and if, as should be, the case was under close observation during the first six or seven days, and was not progressing satisfactorily, it was not a difficult matter to detect the extension of the infection to the posterior urethra, when irrigation into the bladder should at once be commenced.

Colonel Harrison's remarks on the value of cultural methods in the test of cure could not be too strongly driven home. There were quite a number of male cases, and still more female cases, in whom bacteriological examination of the discharge failed to demonstrate the gonococcus, while a culture on the proper medium would show that the patient was still infective. He was in complete agreement with him also on the value of the complement fixation test, both in diagnosis of obscure latent conditions and as a test of cure. The technique of the test, however, was far from perfect in many laboratories as yet, and was now in probably the same position as was the Wassermann test ten years ago. It was a true serological test, and with improvement and perfecting of the technique should, he thought, be one of the most valuable tests in the very near future.

He finally asked the question: Why was this elaborate technique necessary in diagnosis and cure? Why did not the public appreciate the importance of gonococcal infection and come for treatment the first day of their disease? It was, as Colonel Harrison said, because the public were not educated to consider the condition a serious one. It was gradually dawning on them, and he thought the best method of driving it home more quickly to them was the educating of first the student, who would be the practitioner of the future, through him the practitioners of the present day, and through them the general public. Once they were educated to look on gonococcal infection with the same seriousness that they looked on syphilis, there would be fewer cases of self-treatment and fewer also of that type which was simply tinkered with until the condition had become chronic or some gross complication had set in.

In conclusion, he associated himself with the remarks of Dr. MacKenna on the previous day, in stating how much he felt that this Section, and he himself personally, owed to the President, Colonel Harrison, for the help which he had at all times given so many of them personally in their work, and for the impetus which he had given to the scientific study of venereal diseases throughout Britain.

RESOLUTION.

Before the meeting closed the following resolution was submitted and passed unanimously:

> That this meeting desires to bring before the Council of the British Medical Association the necessity of such action as will ensure the inclusion of instruction in venereal diseases in the curriculum of every medical student, together with the institution of a test of proficiency in diagnosis and treatment as a condition of qualification.
>
> It desires also to draw attention to the advisability of encouraging, by every means possible, the carrying out of post-graduate instruction in these subjects amongst general practitioners.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE LOCAL USE OF OXYGEN IN EMPYEMA.

ALTHOUGH in most instances the simple opening of an empyema and the insertion of a drainage tube is attended with good results, there are certain cases which do not pursue such a favourable course. In this paper I put on record cases under the care of Dr. T. Wardrop Griffith in which the local use of oxygen was attended with great benefit. Oxygen from a cylinder, warmed by passing through hot water contained in a wash-bottle, is passed through a sterilized rubber tube inserted deep down into the cavity, and allowed to flow for about ten minutes. An increase of pressure in the pleural cavity is avoided by employing such a width of tubing as will permit the easy escape of gas at the sides of the tube. Occasionally it will be necessary to keep the margins of the wound separated by means of forceps. A gentle stream of oxygen is all that is required. It is conceivable that collapse of the patient might occur if oxygen at a high pressure was suddenly introduced into the pleural cavity in spite of the precautions already mentioned. It is important, therefore, that the pressure of oxygen should not be very high. The tube should not be inserted before the oxygen has been turned on. A good idea as to the pressure of the oxygen can be obtained by allowing it to play on one's own skin. When the sinus is becoming narrow in the later stages it is desirable to stop the use of oxygen on account of the inefficient return of the gas at the sides of the tube. It will usually be quite safe during the first fourteen to twenty-one days after the operation. During the administration of oxygen by this method the patient experiences no pain or discomfort.

Case 1.—L. H., aged 25, was admitted to the Leeds General Infirmary on April 18th, 1921. She had previously been treated for right lobar pneumonia beginning on April 1st; there was no crisis, and the temperature remained high. Empyema was diagnosed; it was opened in the usual way in the scapular line; four pints of thin yellow foul pus were evacuated, and a drainage tube inserted. Dr. J. W. McLeod, who made a bacteriological examination of the pus, reported: "Films show very numerous bacteria, including fusiform bacilli and coarse spirochaetes. Cultures negative at eighteen hours. Bacteria detected are probably anaerobes." The condition of the patient did not improve, and the temperature oscillated. The external wound was very foul and unhealthy and the patient very ill. I gave the first injection of oxygen on the evening of April 24th, believing that theoretically oxygen would be inimical to the presence of anaerobes. The same treatment was carried out on the following morning. On the morning of April 26th the patient's general condition was greatly improved; the wound was now healthy and the foul odour had almost disappeared. The temperature, which up to the time of the first injection had been oscillating, came down within forty-eight hours from 103° to 99.2°. On repeating the injections the temperature fell to normal. The patient made an uneventful recovery, and was discharged perfectly well.

From this case I turned to the treatment with oxygen of cases of empyema due to aerobic organisms, and I was surprised to notice the marked improvement in the following cases of empyema of pneumococcal origin:

Case 2.—N. R., aged 15. The empyema was preceded by pneumonia. The temperature remained normal after the operation; under oxygen treatment the empyema healed completely in three weeks.

Case 3.—J. W., aged 24. This was a case of empyema following labour and pneumonia. The empyema healed completely in four weeks.

Case 4.—M. H., aged 1½, was admitted to the Leeds General Infirmary on May 12th, 1921, with a diagnosis of pneumonia. The temperature came down after a week and the general condition greatly improved. During the course of the following two days the child became very ill, breathing very rapidly. There was dullness at the right base and the breath sounds were diminished. Exploration proved pus to be present. Shortly afterwards the empyema was opened in the right scapular line, several ounces of pus were evacuated, and a drainage tube inserted. The bacteriological examination of the pus yielded a pure culture of pneumococcus. The child gradually improved until May 28th, when the temperature began to rise. On June 1st she vomited, the temperature rose to 103°, and she was extremely ill. The temperature continued to oscillate in spite of the fact that drainage was good. I gave the first injection of oxygen on June 5th and on the following day two injections. The general condition improved, the temperature came down to normal, and remained there for the first time for ten days. The effect on the pulse rate and respirations was also well marked, both dropping to a normal figure. On June 7th, two days after the first injection of oxygen, it was noticed that the pus, which had previously been very thick, was now largely serous. The patient was making an uneventful recovery and the empyema was almost healed, when she unfortunately contracted chicken-pox. This was followed three days later by bronchopneumonia on the sound side and acute otitis media, and she died four days afterwards. *Post mortem* no pus was found in the pleural cavity, and the empyema was almost healed.

Three other cases of empyema following pneumonia, in children aged 2 years and 6 months, 2 years and 10 months, and 1 year and 3 months respectively, have all done very well under oxygen treatment.

L. GORDON, M.B., Ch.B.,
House-Physician, Leeds General Infirmary.

Reviews.

MEDIAEVAL SCIENCE.

Mediaeval Contributions to Modern Civilization,[1] edited by Professor HEARNSHAW, is a volume of lectures by various authors on religion, philosophy, science, art, poetry, education, economics, and politics. Science is undertaken by Dr. Charles Singer, and those who know his qualifications as a historian of science generally, and his special knowledge of the documentary sources for its obscure mediaeval period, will turn to his essay with great expectations. Nor will they be disappointed, for there can hardly be a more brilliant or clearly written outline of the subject in so short a space.

The writer has condensed with admirable skill the scientific history of some twelve centuries, yet he finds room not only for complete and instructive summaries of the work of individuals—for example, Roger Bacon—but also for picturesque details of great movements, such as "the Arabian infiltration." The essay also stands out from its companions in being illustrated by two mediaeval schemes of the universe, two diagrams, and a tabular outline of the period, which illumines more than its own subject. Yet the reader will be struck by one notable defect, or rather peculiarity, for, except on the principle of "snakes in Ireland," he will find nothing about "contributions to modern civilization." The common view is that science, having made a brilliant start in ancient Greece, disappeared during the Middle Ages, the science of modern civilization being partly a new birth about three centuries old, partly "an outgrowth of classical antiquity." Dr. Singer admits that there is much to be said for this, especially if we adopt his definition of science proper as not "organized knowledge" but "the process which makes knowledge," scientific activity. This must be distinguished from science in the vulgar sense, which is knowledge, or supposed knowledge, of nature, or even "an attitude towards phenomena," and he defines the Middle Ages as the period during which knowledge-making barely existed and sometimes disappeared. Its origin may be traced back to the completion of the work of Ptolemy and Galen in the second century—an early date, but not unjustified, for Ptolemy signed the capitulation of science to superstition when he wrote the great mediaeval handbook of astrology, and at the same time gave mankind a system of the universe capable of explaining the phenomena, and satisfying all observations possible during the next fourteen centuries; while Galen summed up the medical sciences, including all that concerned the microcosm, with a completeness and systematic power which might well make future generations ask, Why go through all this again when it has been done in so incomparable a manner by this wonderful man? Their work would have caused a temporary check in knowledge-making even in favourable circumstances, but coinciding as it did with political disasters, a "failure of nerve," and a sense of the gathering darkness of the world, it marks a practical cessation of progress. Between the fifth and tenth centuries men not only cease to make knowledge, but, with one or two exceptions, anxiously disavow any wish to attempt it, as does Paul of Aegina in the preface to his medical compilation.

After the tenth century a sort of dawn appears; men make, or try to make, knowledge, but they do it apologetically. "We are as dwarfs on the shoulders of giants, so that we can see more and further than they, not by our own keen insight or stature, but because so raised aloft." This slightly condensed saying of the twelfth century Bernard Sylvestris was repeated in various forms down to the fourteenth century Guy of Chauliac by people who thought they had found something new. Guy seems the last (though sometimes called the first) eminent writer to use the simile, for after his time it was not thought so necessary to apologize for knowledge-making.

At the Renaissance "the recovery of the Greek texts, even if it enlarged the mental horizon, chained men's minds even more closely to the past." On the other hand, the Reformation helped to separate the material from the spiritual world, and to leave the former as "the acknowledged dwelling place of laws discoverable but not discovered." Then, in 1543, the publication of the *De revolutionibus orbium coelestium* of Copernicus and the *De fabrica corporis humani* of Vesalius showed that men were at last turning their faces from Ptolemy, Galen and other ancients and preparing to go forward in knowledge-making. The author concludes: "As the proof sheets of the *De revolutionibus* fell fluttering to the ground from the dying hand of Copernicus, something more than his great spirit had gone from the world; the whole system of mediaeval science was no more."

But how about "contributions to modern civilization"? The editor in his introduction suggests that the contribution of mediaeval science to succeeding ages is "that phenomena are but manifestations of occult powers." The statement is brief to obscurity, and might refer to the method of solving a problem by setting up one or more imaginary entities to whose volition or potency the result is attributed. Thus the action of a pump was ascribed to Nature's abhorrence of a vacuum, that of opium to "a dormitive virtue, the nature of which is to make the senses slumber," and the phenomena of heat to manifestations of an occult phlogiston. This was doubtless mediaeval, but it is surely a *damnosa hereditas*.

Possibly Professor Hearnshaw was thinking rather of neo-vitalism and psycho-analysis, but we shall perhaps all agree that the chief single, if not the only, contribution of mediaeval science to modern civilization was the introduction of the Arabic numerals.

EDWARD T. WITHINGTON.

[1] *Mediaeval Contributions to Modern Civilization.* A series of lectures delivered at King's College, University of London. Edited by F. J. C. Hearnshaw, M.A., LL.D., with a preface by Ernest Barker, M.A. London: G. G. Harrap and Co., Ltd. 1921. (Med. 8vo, pp. 257. 10s. 6d. net.)

PSYCHIATRY.

Psychiatrie[2] is the seventh volume of a French system of medicine entitled *Traité de Pathologie Médicale et de Thérapeutic Appliquée*, which is to consist of thirty-two comprehensive volumes, so that the editors, Drs. EMIL SERGENT, L. RIBADEAU-DUMAS, and L. BABONNEIX, have undertaken a big task. The section on psychiatry is divided into two volumes, the first of which we have now received; it comprises accounts of the general symptomatology of mental disorder, acute mania, psychasthenia and obsessions, melancholia, periodic psychoses, confusional psychoses, systematized delusional states, the mental state of hystericals and epileptics, and war psychiatry. The treatment of these various types of disorder is designedly not exhaustive. The aim is definitely clinical and the needs of the practitioner are kept constantly in the foreground. The various contributors are well qualified by their experience to present a balanced, practical, and useful description of the diverse clinical forms which mental disorders assume, and while the general purpose of the editors is to furnish articles of a didactic nature, the personal element is sufficiently in evidence to distinguish the volume from the ordinary textbook.

A general survey of this first volume gives rise to an impression that French psychiatrists are, on the whole, conservative. They do not appear to have been influenced to any extent in their classification, general conceptions, or psycho-pathological outlook by foreign schools of thought, so that French psychiatry has followed its own line of development. On the whole the various contributors to this volume confine themselves to a purely descriptive method of study, and do not seek for explanations of abnormal behaviour in terms of personality, conflicts, and wishes. The hereditary factor is perhaps unduly emphasized at times, and an unnecessarily fatalistic attitude as to the possibilities of therapeutic measures is adopted. This tendency is particularly marked in the discussion of psychasthenia, in which hereditary degeneracy is stated to be the one essential etiological factor.

The book will be found a useful introduction to French psychiatry from the purely clinical point of view, but the more specialized monographs will have to be consulted to gain a proper appreciation of much of the present and past work that has been done in France in relation to disorders of the mind.

[2] *Psychiatrie.* Tome I (Tome VII, *Traité de Pathologie Médicale et de Thérapeutic Appliquée*). Edited by Emile Sergent, L. Ribadeau-Dumas, and L. Babonneix. Paris: A. Maloine et Fils. 1921. (Demy 8vo, pp. 425. Fr. 25; post free, Fr. 27.50.)

ELECTROTHERAPY.

A Handbook of Electrotherapy,[3] by Dr. GROVER of Colorado Springs, is intended to appeal to the twenty-five thousand physicians in the United States who are said to possess and employ some form of electrical apparatus for the treatment of disease. The author states that his work is meant to give practical instruction in electrotherapy, and that he has endeavoured to "boil down" the subject so that it may be understood and be useful to the entire medical profession. He considers that as so few medical colleges include electrotherapeutics in their curriculum many practitioners, owing to want of proper instruction, fail to obtain the favourable results which should follow on the skilled application of the various forms of electrical treatment. Like most books of this kind, the first subjects dealt with are the principles of electricity and the various forms of apparatus in use. The illustrations of this part are of the type usually associated with the catalogues of instrument makers. In discussing the treatment of various diseases the author adopts the plan of stating in the first place in a very concise manner his conception of the individual disease, and follows this with a paragraph or two to indicate his method of treatment. As an example we may quote his remarks on the subject of migraine:

"Cases of migraine are born, not made. The patients are always toxic. A course of auto-condensation consisting of five daily treatments and one treatment every two weeks thereafter will do much for these patients toward warding off the attacks."

Or again:

"Mycosis.—Any disease of the skin characterized by soft mammillated tumours or fungoid neoplasms. Treatment.—The ideal treatment for all fungoid growths on the skin is radiotherapy. Technic.—The dose at first should be small fractional H½ to H½. Later on the dose may be increased to H½."

These two quotations are average instances of the author's method of writing. A fair criticism would be that the instruction imparted is hardly of the kind that would tend to accomplish the object of imparting to men who had not had proper instruction the necessary information to enable them to obtain those results which should follow on the skilled application of electrical methods. A chapter on roentgenology, which brings the book to a conclusion, is so short and wanting in essentials as to be of no practical value. The bibliography is so incomplete that even the writings of the late Dr. Lewis Jones are not referred to.

A fifth edition of *The Essentials of Medical Electricity*[4] is now available. The original book, published in 1905, as also the second edition, was written by Dr. E. R. Morton; for the last three editions, published respectively in 1916, 1918, and the present year, Dr. E. P. CUMBERBATCH, of St. Bartholomew's Hospital, is responsible. In the later editions a considerable amount of new matter has been introduced into the text and certain sections have been rewritten, so as to bring the volume up to date and increase its utility to students. This is probably why there are occasional duplications of statements, such as those dealing with the penetration of ions on pages 91 and 93. The volume concludes with an especially well-written chapter on the physics of electricity for the benefit of those whose knowledge thereof has grown rusty.

THE VICIOUS CIRCLES OF POVERTY.

SINCE 1911, when Dr. HURRY published the first edition of his *Vicious Circles in Disease*, his name has become intimately associated with the process whereby a primary disorder provokes a reaction that perpetuates such disorder, cause and effect acting and reacting on each other. By continued thoughtful endeavour he has expanded the range of his investigations not only as regards physical disease but into social disorder, and as a result we now have before us the second edition of *Poverty and its Vicious Circles*.[5] After quoting the definitions given by Adam Smith, Godard, Charles Booth, Rowntree, and others, poverty is described in broad terms as "a condition which lacks some of the requisites of efficiency whether in the individual or in the community." The causes of poverty are complex and their detailed study does not come within the scope of this volume, the object of which is to show how poverty, when brought about, perpetuates itself.

Of the four parts into which this study is divided, the first—on the vicious circles of poverty—occupies considerably more than half the volume; the earlier chapters deal with defective housing, defective feeding, defective clothing, defective education, defective credit, and the last with "artificial circles," in which measures designed as remedies do more harm than good; these are described under the headings of Poor Law relief, protection, indiscriminate hospital relief, free shelters, free feeding of school children, uneconomic rise of wages, fixing of prices of commodities, restriction of output, and indiscriminate alms-giving. In Part II the effects of vicious circles are described, poverty being shown to be worse than self-perpetuating and to be self-aggravating and often a fatal disorder. After these rather depressing considerations Part III, on "the breaking of the circle," which has been largely rewritten in the light of recent social reforms, discusses at length the effects of legislation of voluntary organizations—namely, those not under State control, such as friendly societies, trade unions, the co-operative movement, and of individual effort. Part IV, or the conclusion, ends on the cheerful note that much can be done to transform the present conditions by practical schemes based on wise judgement and justice, and not by Utopian visions beyond the possibility of realization. Dr. Hurry must be congratulated on the result of his honest labours and on a scholarly and well-balanced presentation of a subject bristling with difficulties.

PUBLIC HEALTH.

SINCE the first edition of ROBERTSON and PORTER'S *Sanitary Law and Practice*[6] was issued in 1905 the output of public health legislation has been considerable, and has included two important Housing Acts; moreover, the creation of the Ministry of Health has materially affected the central administration. The fifth edition will be found to contain suitable references to all recent legislation, and by excluding out-of-date matter the volume has been kept within a reasonable size. We still hold the opinion we expressed when reviewing the first edition, that although it is a book on sanitary law, it contains a large amount of matter only remotely connected with the law. If this could be omitted space would be found for annotations on the Acts of Parliament and by-laws and regulations, which are very accurately transcribed, but many portions of which could be explained and commented upon with the greatest advantage by such experienced medical officers of health as the authors. We say this in no spirit of disparagement, but with a sincere desire to secure the improvement of a well established textbook, an improvement, we are certain, which would enhance the reputation of the authors. An attempt at the sort of annotation we have in mind has been made in the appendices of the fifth edition, which include the text of Orders and Regulations made from time to time by the central authority. Following most of these documents is a paragraph setting out the duties of the health official with regard to the particular Order or Regulation. This is excellent, and cannot fail of being helpful to a busy health officer. It is difficult to understand why a book which is essentially one for reference should be so badly indexed. There is no mention in the index of the Ministry of Health, and the Local Government Act, 1888, is indexed as the Local Government Board Act.

Although sustained and organized study of hygiene has been carried out in the United States of America only within recent years the literature of the subject is already of some magnitude. One of the latest additions to it is

[3] *Handbook of Electrotherapy for Practitioners and Students.* By Burton Baker Grover, M.D., Colorado Springs, U.S.A. Philadelphia: F. A. Davis Co. 1921. (Demy 8vo, pp. 432; 102 figures. 4 dollars net.)

[4] *Essentials of Medical Electricity.* By Elkin P. Cumberbatch, M.A., B.M., B.Ch.Oxon., M.R.C.P. Fifth edition, revised and enlarged. London: Henry Kimpton. 1921. (Cr. 8vo, pp. 403; 76 figures; 11 plates. 10s. 6d. net.)

[5] *Poverty and its Vicious Circles.* By Jamieson B. Hurry, M.A., M.D. Second and enlarged edition. London: J. and A. Churchill. 1921. (Demy 8vo, pp. 423; 7 plates. 15s. net.)

[6] *Sanitary Law and Practice: a Handbook for Students of Public Health and Others.* By W. Robertson, M.D.Glasg., D.P.H., M.R.C.P. Edin., and Charles Porter, M.D., B.Sc., M.R.C.P.Edin. Fifth edition. London: The Sanitary Publishing Company, Ltd. 1921. (Demy 8vo, pp. 775; 62 figures. 18s. 6d. net.)

Public Health and Hygiene,[7] edited by Dr. W. H. PARK, of the Public Health Department, New York City, who has written the greater part of the book but has called to his assistance twenty-three other writers who deal with subjects on which they are specially competent to speak. It is stated by the editor that no attempt has been made to treat the subjects of public health law and administration, but we are glad that an exception has been made in the chapters on milk supplies contributed by Dr. Park, for it cannot be denied that the public health authorities in America have been remarkably successful in their efforts to obtain a clean and pure milk supply. The means that have been adopted are described plainly and lucidly. It is, however, discouraging, after reading of the elaborate precautions that are taken in all the stages of its progress from the cow to the consumer to ensure a cleanly milk supply, to be told by Dr. Park that "the attempt to bring the general market milk to the degree required for infant feeding can never be successful in a large city . . . no matter how complete or well organized the system of dairy inspection, it will not be possible to render entirely safe the ordinary commercial milk which is produced and shipped to a city." He considers therefore that milk should be pasteurized when it is intended for the use of young children. After the recent disquieting revelations made by Dr. Shadick Higgins to the St. Pancras Borough Council on the unsatisfactory methods of pasteurizing carried on in that borough we cannot be surprised at the warning of Dr. Park, who considers that commercial pasteurization should be subjected to careful supervision and frequent inspections and testing of the machines. The chapter dealing with the prevention of infectious diseases is very comprehensive and is quite on the lines of present-day methods. In connexion with several diseases the sections on the mode of control and general measures of prevention seem to be word for word those contained in other American textbooks, from which it would appear that they are copied from some official memorandum. If this is the case it is a pity the authoritative source is not acknowledged. The question of housing is dealt with in a comprehensive manner by Mr. Lawrence Veiller, the secretary of the National Housing Association of America. It comes as a shock to learn from him that there is a small school of sanitarians in America who consider that housing is not a health problem. He certainly is not a disciple of that school. Although he considers that good housing conditions require legislation for their attainment he emphasizes the importance of holding up to the community right standards. A lack of these standards, he maintains, is largely responsible for the bad conditions prevailing in many parts.

In a work such as that now before us, which includes contributions from more than a score of different writers, there must always be a certain amount of overlapping in the various sections, and apparently the editor of this book has not taken any great pains to prevent it, a defect which we hope may be remedied in future editions; there are also very few cross-references. Regarded as a whole, Dr. Park has brought out a reliable and comprehensive textbook which should certainly serve the purpose for which he states he intended it—namely, as a guide for public health officials, physicians, and medical students, especially in the United States.

GYMNASTICS AND MASSAGE.

FROM the preface to *Notes on Diseases treated by Medical Gymnastics and Massage*, by Dr. J. ARVEDSON, of Stockholm, it would appear that the volume has long been regarded in Scandinavia as the standard textbook on the subject. Into the English edition[8] some additional information has been introduced by the editor and translator, Dr. MINA L. DOBBIE. The general aim is to supply students of medical gymnastics with sufficient information about the morbid conditions they may have to treat to enable them to handle them intelligently. The method employed is to state succinctly in respect of each medical or surgical disease considered, first the characteristic pathological changes, then the commonly ascribed causes and symptoms; and, finally, to give a description of the treatment deemed desirable. The latter is likely to be understood fully by the student only if he has Kleen's *Massage and Medical Gymnastics* at hand, since the terms used in prescribing movements are recondite. An ordinary medical reader of this volume may possibly be surprised at the number and variety of the ailments with which the medical gymnastic student is expected to be conversant and prepared to handle. In respect of a very few, he is warned not to undertake treatment except under direct medical approval. Preceding the chapter on disease entities are some twenty pages of introductory matter. In these the student is told how to diagnose the conditions with which he meets, but is counselled to avoid as a rule attempts at prognosis. The different forms of cell degeneration are described, but the student is seemingly expected already to be familiar with the nature, structure, and function of cells of all kinds and other histological and bacteriological details. The terms "morbid changes" and "pathological changes" are both used, but what distinction the student should draw between them is not stated. He is informed, however, that both the quality and quantity of food administered are of importance, and that it should be divided into three or four meals a day, as otherwise the digestive organs are apt to be overworked.

NOTES ON BOOKS.

THE new number of the *Quarterly Journal of Medicine* contains an abridgement of Sir Thomas Lewis's Linacre lecture on the law of cardiac muscle, with special reference to conduction in the mammalian heart; an elaborate report of an investigation of metabolism in rickets by Dr. Leonard Findlay, Professor Noël Paton, and Mr. J. S. Sharpe. There is also a paper by J. W. McLeod, A. G. Ritchie, and C. A. Dottridge, on the incidence of infections with Pfeiffer's bacillus. The suggestion put forward ten years ago by Richter in America to the effect that the periodicity of influenza epidemics is due to the recurrence of a certain type of weather—namely, prolonged periods of anti-cyclonic conditions—is favoured. It is thought that the atmosphere at these periods may be more irritating to the lungs, and that consequently a microbe like Pfeiffer's bacillus, which apparently tends to persist in the adult human body chiefly as an agent of chronic bronchitis, would find a special opportunity for extended propagation—that is to say, for exaltation of virulence by passage.

The June number of the *Annals of Medical History*,[9] published in New York, announces that Sir D'Arcy Power has been co-opted an associate editor, in the place of the late Sir William Osler; the other representative from this country is Dr. Charles Singer. A striking feature of this well-got-up quarterly is the portrait on the cover, which changes with each issue; this time it is one of Jerome Cardan, the most famous physician in Europe when, in 1552, he travelled from Pavia to Edinburgh to consult on the case of John Hamilton, Archbishop of St. Andrews, and brother of the Regent of Scotland; the story of this great consultation is attractively told by Dr. Charles L. Dana in a finely illustrated article. In his essay on Montaigne and his claim to the notice of the profession, Captain J. S. Taylor, the editor of the *United States Medical Bulletin*, points out his medical bent, though he professed a horror of the faculty, and draws attention to his pitiless description of his own character and to his accurate observation of disease, especially in his own person. An unrecognized Anglo-Saxon text by a monk of Ramsay in Huntingdonshire is described by Dr. and Mrs. Charles Singer, who have determined its date as 1011; this manuscript, which is in the Bodleian, throws light on the theories held by the early English *physici*. Dr. Casey Wood describes the first scientific work on spectacles, published at Seville in 1623, and written by Benito Daca de Valdez, notary of the Holy Office (Inquisition); it is an extremely rare book, and of the eight known copies one is in Washington, one in the British Museum, and the others in Spain. Professor Howard Kelly establishes the claim of Dr. Lafayette Houghton Bunnell as the discoverer, in 1851, of the famous Yosemite Valley in California; and the stormy life of Dr. Charles Caldwell, of which we wrote last week, is sketched in detail by Dr. W. S. Middleton. There is a short editorial on William MacMichael, the author of *The Gold-headed Cane* and of the *Journey from*

[7] *Public Health and Hygiene, in Contributions by Eminent Authors.* Edited by William Hallock Park, M.D. Philadelphia and New York: Lea and Febiger. 1920. (Roy. 8vo, pp. 895; 123 figures. 10 dollars.)

[8] *Notes on Diseases Treated by Medical Gymnastics and Massage.* By Dr. J. Arvedson. Translated and edited by Mina L. Dobbie, M.D., B.Ch. London: J. and A. Churchill, 1921. (Cr. 8vo, pp. 288. 8s. 6d. net.)

[9] *Annals of Medical History.* Vol. iii (Serial No. 10), June, 1921. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber. Published quarterly. Yearly subscription, 8 dollars; single numbers, 2.50 dollars.

Moscow to Constantinople in the Years 1817-1818. Dr. F. R. Packard reviews, with well deserved praise, Professor Howard Kelly's and Dr. W. L. Burrage's *American Biographies.*

We have received from Messrs. J. and A. Churchill, the medical publishers, a copy of their new catalogue, which extends to 47 pages, and is illustrated by figures from a number of their publications. All branches of medicine, as well as several branches of science, appear to be covered.

Messrs. Churchill announce for early publication *An Introduction to Biophysics*, by Dr. D. Burns, Grieve Lecturer in Physiological Chemistry in the University of Glasgow, with an introduction by Professor D. Noël Paton, F.R.S.

Messrs. E. and S. Livingstone, of Edinburgh, have undertaken the agency of the American *Medical Record* in this country and the colonies.

APPLIANCES AND PREPARATIONS.

Pure Glucose.

GLUCOSE of special purity suitable for intravenous or subcutaneous injection was, it appears, until lately only obtainable from foreign manufacturers. We have now received from the British Drug Houses, Ltd., a sample of glucose prepared by them especially for this purpose, accompanied by a pamphlet summarizing its therapeutic applications and detailing the indications for its adoption, which are largely the same as those for normal saline solution; data for the preparation and administration of solutions are supplied.

Our analysis shows that the preparation is free from arsenic and the inorganic impurities which may be present in glucose being derived from reagents of manufacture. The glucose yields on incineration an ash consisting almost wholly of calcium sulphate, which amounts to no more than 0.2 per cent. It is free from acid products, and contains no perceptible amount of organic substance other than glucose. These characters distinguish the article as one possessing a degree of purity greatly excelling that defined by the tests of the *British Pharmacopoeia* for pure glucose, and one which is well suited for intravenous or subcutaneous injection.

A sample of the same product rendered anhydrous was also submitted to us by the same firm and found on analytical examination to be equally satisfactory. This preparation is made specially for use in the bacteriological laboratory, and also as an excipient for hypodermic tablets.

A Tonsil Haemorrhage Clamp.

Mr. COURTENAY YORKE, Aurist and Laryngologist to the Liverpool Stanley Hospital, etc., has designed a tonsil haemorrhage clamp which presents the following features: (1) Lightness; the weight is just over one ounce, and consequently when in use causes no dragging pain. (2) The inner blade terminates in a small disc, roughened on the inner surface and intended to serve as a wool carrier. (3) The outer blade ends in an elongated plate, which makes counter-pressure behind the angle of the jaw. This plate is pivoted at its centre, so that it can be adjusted for use on either side. When the instrument is to be applied wool or ribbon gauze is made secure to the roughened disc so as to provide a soft rounded pad of requisite size. The counter-pressure plate is set so that it is concave forward and inclined downwards and forwards. The blades are now widely opened and the inner one carried into the mouth until the pad enters the tonsil wound cavity. On closing the instrument the counter-pressure plate applies itself, automatically and without any guidance, to the side of the neck just behind the angle of the jaw. It only remains to adjust the pressure until the wound is sufficiently firmly held between the two blades. The application of the clamp causes very little discomfort, and one can easily be used on each side at the same time. As the act of swallowing cannot take place while the clamp is fixed, it is necessary to incline the patient's head so that the mouth contents can dribble out. The same instrument is serviceable at all ages; the size of the pad, however, must be adapted to the extent of the tonsil wound cavity. In sensitive patients a preliminary cocaine spraying of the fauces and the use of morphine will be helpful, while, if desirable, the pressure pad may be moistened with adrenaline or other styptic. The instrument is made by Messrs. Mayer and Phelps, London.

THE ADRIAN BROWN MEMORIAL LECTURE.

ADRIAN BROWN was the first Professor of the first established University School of Brewing in this country, and the first memorial address in his honour was delivered by Professor Henry E. Armstrong at Birmingham University in February last. It has since been published in the *Journal of the Institute of Brewing* (vol. xviii, New Series, 1921, pp. 197–260). Under the somewhat forbidding title, "The Particulate Nature of Enzymic and Zymic Change," Professor Armstrong has conceived and brought forth a most fascinating account, not only of the man who was a striking and lovable person, but more specially of his subject, and tells in quite poetic strain the stories of the barley-corn and the yeast-cell, which are veritable fairy tales of scientific endeavour and advance.

There is much in the lecture which appeals to the technical chemist, and it is the thesis that enzymes are never in true solution which gives its title to the address. But this conception, important as it is, forms after all but a small portion of the work, and more general interest will be felt in the wider issues which are raised. Just as the neighbouring town of Burton-on-Trent played so important a part in the development of Adrian Brown's genius, so also it influenced Professor Armstrong when he sang the praises of its chief product; not the beer of the present day, or its predecessor that of the war days, but of real beer with bottoms, not filtered and refined almost beyond recognition, as is the custom nowadays. Just as when reading Dickens's accounts of good square meals the appetite is stimulated, so when one hears of Professor Armstrong's recollections of real good drinks, told with gusto and accompanied with snatches of verse, the feeling of healthy thirst arises in the reader. The teetotaler stands revealed as a puny person and the prohibitionist as a pretender, as one scans Armstrong's scathing sentences on each. Even the physiological investigators who have attacked the problem do not escape. To investigate the effects of alcohol by estimating the rate at which a typist can work is declared to be childish. Suet pudding for lunch has much the same effect, yet the food reformer has not yet called suet pudding a drug nor classed it with morphine as a depressant. One of the many shibboleths our author takes the opportunity to expose is the present-day cry for organized research. True investigators are born, not made, and to expect real research from committees appointed *ad hoc* cannot but result, he thinks, in disappointment. Professor Armstrong with prophetic instinct looks forward to a glorified Burton-on-Trent, which will not only brew good beer, but will form the centre of work out of which many biochemical problems will be solved, for, after all, are not the bodies of the higher creatures, man included, congeries of cells akin to the yeast cell?

The story of Pasteur's work, which started from the examination of tartaric acid crystals, and which was diverted into the biological groove by the accidental observation that a mould preferred (to use with apologies this vitalistic subterfuge) to thrive upon one of the isomers and not the other, has never been better told, nor do I remember to have seen more clearly put the meaning of the asymmetric carbon atom and its mirrored image, and the important part it plays in nature.

The share in the rise of the science of brewing taken by other chemists, such as Horace Brown, Adrian's half-brother, Cornelius O'Sullivan, Griess, Böttinger, Emil Fischer and others, is outlined in a most interesting manner. But the contributions of physical chemists working, as so many do, in circumscribed grooves, meet with but little favour; their work, moreover, is obscured by their love of mathematics. The modern tendency of numerous biologists to express their results in formulae rather than in the King's English is a great bugbear to Professor Armstrong. As Huxley insisted, you get little out of the mathematical mill but what you put into it; unless the mill is worked with brains it cannot be effective. "The men in our ranks who have worked it have too often been chemists but superficially, and being without the sympathy which comes only of understanding have failed to notice the many factors at work." Whatever faults Professor Armstrong has, fear of plain speaking is not one of them; nor can he be accused of narrowness in his sympathies. Since he has turned during latter years to the biological aspect of chemistry and recognized its overwhelming importance, he appeals directly to the physiologist and to the medical man.

His address is so full of biological meat that it is difficult to make a selection from the mass of original thoughts he presents there, but to comment on all would mean an article longer than the lecture itself. I will therefore be content with one more reference, and this to a point of nomenclature. The word "vitamine" has for long stunk in the nostrils of the chemist. The loss of the final "e" has deprived it of much of its sting, but Professor Armstrong prefers to get rid of it altogether, and proposes in its place the word *advitant*. If only its coiner had been the first in the field! Vitamin is now, one fears, firmly rooted; one can only regret the difficulty there always is in uprooting these ill-advised expressions; still, if such be possible, *advitant* as a substitute appears free from all objection.

W. D. HALLIBURTON.

THE BALTIC INTERNATIONAL CHOLERA CONFERENCE.

IT appears that conditions in Russia are reaching a point that may have serious effects upon the health of Europe. One of the most productive districts of Russia, formerly the granary both for that country and for Europe, has been stricken by drought, which has destroyed the crops and reduced the Russian people to a state of famine. An emigration that is almost a panic has started, we are told, from the famine districts, and the horrors of the flight of those starving people have been increased owing to the fact that such diseases as cholera, typhoid fever, and scurvy continue to follow them. The districts from which the emigration started are stated to be already so affected by cholera that combative measures are impossible in present circumstances. The cholera epidemic is gradually spreading over the country, and the rest of Europe is faced with the danger of cholera. The three Baltic states, Latvia, Esthonia, and Lithuania, have decided, therefore, to assume the responsibility of making a sanitary cordon against the spread of the disease. A Baltic conference was suggested by Lieut.-Colonel Edward W. Ryan, M.D., the American Red Cross Commissioner to Western Russia and the Baltic states, and this conference was held in Riga from July 25th to 27th under his honorary presidency, with the Assistant Director of the Latvian Health Department, Dr. Kivitzki, in the chair. Dr. R. Adelheim of the University of Riga has prepared a report of the deliberations of this conference, which has been forwarded to us at his request by Colonel Ryan.

The conference agreed to adhere to the Paris Convention of 1903-1911, and it was decided to consider the decrees of the Convention of Paris as binding for the three Baltic states, and to induce the representative Foreign Offices to take the necessary steps for their formal adherence to the Convention. As regards relations with Russia, the conference found that no official records on the cholera epidemic had reached the Governments of the three Baltic states, but that nevertheless official papers in Russia did not deny the existence of cholera. Owing to diplomatic difficulties the conference refrained from declaring immediately that Russia was affected by cholera, but agreed to the request of the respective Governments to apply to the Soviet Government for immediate information on the question. The Esthonian representative said that his Government had some time ago applied to Russia for this information, but no reply had yet been received. Should, however, the reply of the Soviet Government to the inquiries of the conference not be received in the near future the Baltic states would of necessity proclaim Russia as an infectious country, and this decision would be followed by a strengthened frontier protection. It was agreed by the conference that whatever the reply of the Soviet Government should be, provided it contained confirmation of the existence of the epidemic, the whole of Russia was to be declared as infected by cholera and action taken according to Article 8 of the Convention.

The further work of the conference consisted in dealing with the internal measures to be taken against cholera, and unanimous agreement was reached on this subject. A restriction of railway traffic was found to be necessary in order that the health departments might confine the right of railway travel to such persons only as could show a certificate of health issued by the local authorities. Compulsory vaccination against cholera was not provided for as an invariable rule, but the medical officer in charge was authorized to apply compulsion should circumstances call for such action. The question of preventive measures on the adjacent frontiers was further dealt with, and it was agreed that there should be no interruption of trade and traffic, and therefore no frontier closing. The medical staff in a border zone twenty kilometres wide were to report mutually, through the frontier authorities, all cholera cases which occurred.

In order to co-ordinate the work of the three Baltic states it was decided that their bacteriological institutes should exchange as frequently as possible their epidemiological and bacteriological observations. The Governments of the Baltic states were requested to convoke periodical sanitary conferences and to form a permanent central bureau of representatives of the three states with the duty of examining health conditions. During the discussion the hope was expressed that this bureau might gradually grow into an Eastern Europe international sanitary board. As regards the measures to be taken in harbours, these were in conformity with those provided for in the Convention of Paris, Latvia establishing two observation points on the river Dwina in order to lock up the timber rafting, and similar measures were to be undertaken by the other states.

As soon as Russia should be definitely declared to be infected by cholera it was agreed to apply a strengthened military frontier protection, the three States closing their frontier with Russia; the exchange stations for flax and salt were also to be closed, as well as the other transit stations, with the exception of certain notified border stations. Should a cholera case occur in a train all passengers were to be considered as contagious, and kept under supervision for a definite period. Infected refugee transports were expected to arrive within a short time at the border stations, and it would be necessary to submit these refugees to observation in quarantine stations before they set off for other places. The position of Latvia was especially hard in this respect, as Lithuanian refugees would also pass through Latvian territory on their way home. Latvia possessed only one quarantine station, with accommodation at present for 2,500 to 3,000 people, and not only would it be necessary to enlarge this quarantine station, but another still larger had to be established. A shortage was reported in essential equipment such as beds, bedding, bacteriological apparatus and instruments. It was decided by the conference to request the aid of the American Red Cross in organizing European relief work, so that the first wall against cholera should not be in danger of collapse, and the infection spread from the harbours and the borders of the Baltic states throughout the world.

THE WEST INDIAN MEDICAL CONFERENCE.

THE West Indian Medical Conference, which was held at Georgetown, British Guiana, from June 28th to July 13th, was the second medical conference ever held in the West Indies, the first being the Quarantine Conference of 1904. The delegates to the Conference were: From Barbados, Dr. John Hutson, O.B.E., Public Health Inspector; from British Guiana, Dr. E. P. Minett, Government M.O.H.; from Trinidad, Dr. John Dickson, Deputy Surgeon-General; from Grenada, Dr. G. W. Paterson, Colonial Surgeon; from St. Lucia, Major H. E. Sutherland Richards, M.C., Chief Medical Officer; from Jamaica, Dr. E. D. Gideon, District Medical Officer. The London School of Tropical Medicine was represented by Professor R. T. Leiper, and Dr. John Anderson, of the Filariasis Commission. A representative from Dutch Guiana was also present in the person of Dr. J. Wolff, Government Bacteriologist of Surinam. The Conference was one of Government medical officers, called at the request of the Secretary of State for the Colonies, and was of an official character. Unfortunately, the colonies of British Honduras, the Bahamas, the Leeward Islands, St. Vincent, and Bermuda, were not represented. His Excellency the Hon. Cecil Clementi, C.M.G., the Acting Governor, presided, and the two vice-presidents were Professor R. T. Leiper and Dr. W. G. Boase, Acting Surgeon-General of British Guiana. Dr. E. P. Minett, Medical Officer of Health for British Guiana, acted as secretary of the Conference.

In his opening address the Acting Governor said that the most fundamental questions in every community were, could the inhabitants of the country be kept in good health? and did the population show year by year a natural increment? If these questions could be answered in the affirmative, the community was sound at the core; if the

answer was in the negative, then there was something wrong in the State.

From an administrative point of view one of the most interesting papers read during the Conference was that by Dr. Q. B. DE FREITAS on "Some difficulties of medical practice in British Guiana." He referred to the large size of the districts, to the insanitary state of the villages, and to the fact that in cases requiring hospital treatment the patient's friends were often unwilling for him to go into hospital owing to prejudice, ignorance, the great distance to be covered, and lack of means. Frequently a doctor was called in too late, and the ignorance of the people of the means of spread of infection made many difficulties. There were myriads of flies, there were no latrines, and drains were often stopped up. Frequently in infectious cases the district medical officer was not called, and the first intimation he had was a telegram from the medical officer notifying the case. Sometimes contacts were not inoculated owing to the delay in notifying the district medical officer of the diagnosis. Drinking water was of bad quality and insufficient quantity. There was a lack of trained assistance at childbirth, and there was difficulty in prosecuting unregistered midwives owing to lack of evidence. The examination of meat exposed for sale, in which tubercle might be present, was neglected. There was a lack of control of venereal disease. Building sites were often unhealthy and the dwellings of the people overcrowded. There was insufficient control of cow-byres and swine; cow-byres were frequently close to the houses and swarmed with flies, and thus food was contaminated. In uncontrolled areas vegetation often blocked the public roads. In country districts deaths were often uncertified; the villages were visited once a week by the Government Medical Officer, and in his absence the police N.C.O. decided if the death should be reported to the coroner or not. The discussion revealed the fact that there was no registration of deaths in Barbados, and that the infantile mortality there was the highest in the West Indies.

Miss CLAPHAM subsequently read a valuable paper on "Nursing in the West Indies," and pointed out that the provision of a nursing home was essential, and the introduction of a few trained English nurses would be most beneficial. Dr. MINETT referred to the excellent beginning made in local teaching by the appointment of a board of examiners by the Royal Sanitary Institute in Barbados, Trinidad, and British Guiana; he considered that hygiene ought to be taught in the schools. The interesting statement was made that there was little tuberculosis or leprosy and no filariasis in Grenada, but there was malaria there. On the contrary, filariasis, tuberculosis, and pellagra were prevalent in Barbados, and leprosy was found there, but no malaria. The papers by Mrs. MINETT, M.D., and Dr. WISHART on infantile mortality and child welfare were interesting and up-to-date, and Dr. Wishart also read a valuable paper on the sanitary and health problems of Georgetown. Dr. WOLFF said that the infantile mortality was lower in Paramaribo than in British Guiana, although more organized work was done in the latter. He put it down to the fact that midwives had two years' training at the military hospital at Surinam.

At the conclusion of the discussions of the different subjects, the delegates to the Conference passed the following series of resolutions, which were forwarded to the Secretary of State for the Colonies:

1. The most modern methods of promoting infant welfare, personal and public sanitation, and hygiene should be introduced.

2. In the interests of the health of an immigrant population in the West Indies there were recommended: (*a*) the provision of a pure water supply, (*b*) efficient surface and soil drainage, (*c*) a properly organized system of disposal of refuse and excreta, (*d*) effective control of mosquitos, and (*e*) the stringent enforcement of Public Health Ordinances and Regulations.

3. The West Indian Governments (i) should instruct their Agricultural Departments to promote the rearing of small livestock by the labourers, to provide a suitable proportion of animal pretein for their daily dietary; (ii) should introduce educational propaganda in the schools to promote a knowledge of food value; and (iii) should consider the question of subsidizing local food industries, such as fishing, and the relaxation of duties on imported protein foodstuffs.

4. A survey of individuals in various districts of different colonies should be made to obtain information concerning local and racial factors which result in poor physique and industrial inefficiency.

5. A system of control of midwives should be inaugurated, including methods of training, registration, and supervision by a central authority.

6. The registration of stillbirths should be instituted, with confidential notification of miscarriages, in connexion with measures for infant welfare.

7. The West Indian Governments should adopt school medical inspection as a routine procedure.

8. Restrictive measures for venereal diseases were required, to include educational propaganda and the provision of free and confidential treatment at existing institutions.

9. Alastrim (recently epidemic in Jamaica) should be regarded as small-pox, and research as to its nature should be undertaken.

10. Revaccination of the population should be brought into force.

11. For the control of malaria there were recommended: (*a*) Strict observation of the antimosquito ordinances, (*b*) special attention should be given to the value of screening houses and institutions, and (*c*) mosquito netting should be generally used.

12. The diagnosis of yellow fever should be based on clinical signs and symptoms until an accurate diagnosis by laboratory methods was discovered, but there should be no relaxation of antimosquito measures.

13. The isolation of lepers after notification should be instituted, and arrested cases of leprosy should not be discharged from leper asylums under any conditions.

14. A supply of antitetanic, antidysenteric, and other serums and vaccines should be provided.

15. A united West Indian medical service should be established for the following reasons: (*a*) To provide for the granting of leave to medical officers at regular stated intervals, and for definite periods for considerations of health and for post-graduate study, thereby increasing the efficiency of the service; (*b*) to provide a recognized procedure for effecting promotion, which under present conditions, especially in the case of the smaller colonies, does not exist, thereby supplying inducements to good work and securing contentment; (*c*) to provide for the easy transfer of medical officers from one colony to another for limited periods for the interchange of ideas, and for enabling such officers to become acquainted with the varying conditions of practice in colonies other than their own, to the mutual benefit of the colonies concerned; and (*d*) to provide means to secure for the benefit of all the colonies the advice of officers specially qualified in all matters relating to medical and sanitary organizations.

16. The other colonies should adopt the recent leave regulations of British Guiana.

17. The early appointment of a sanitary commissioner for the West Indies was necessary, to be under the Imperial Government, and independent of local control.

18. The provision of an adequate whole-time staff for the Government Bacteriological Laboratory was necessary.

19. The training of the medical staffs in the Schools of Tropical Medicine should be compulsory for all officers before entry into the service.

20. All officers already in the service should take such a course, and be provided with free transport, full pay while taking the course, and the time so spent should not be regarded as leave of absence.

21. A West Indian medical magazine should be published and circulated.

22. The Colonial Office should approach the London School of Tropical Medicine to undertake research in the West Indies, and the Colonial Governments should secure local support for the specialists sent.

23. A West Indian medical conference should be held every three years.

The Acting Governor congratulated the delegates on their resolutions, and welcomed especially those recommending improved drainage and the provision of a supply of pure drinking water in British Guiana. He announced that a local loan of five million dollars for a permanent sea defence scheme was about to be raised, and said that he regarded it as an insurance, and the necessary preliminary to any effort to drain adequately the coast lands. He pointed out that the area now colonized in British Guiana was partially a reclaimed swamp, 4 ft. below the level of high spring tides.

ON the one hundred and sixteenth commencement day of Bowdoin College the Bowdoin Medical School, U.S.A., closed its doors after an existence of more than one hundred years. The reason is that the college officials feel that they are no longer properly able to maintain the medical school with the financial support available. The degree of Doctor of Medicine was conferred on the last commencement day upon only eight students.

ACCORDING to the *Boston Medical and Surgical Journal*, California, which has just added "Anaesthesiology, Hours 32" to the "minimum requirements for a physician and surgeon certificate," is the first State in the United States of America to place anaesthesia on the list of required subjects in the medical curriculum. The hope is expressed that it will shortly be transferred from the "elective" to the "required" list in every State in the Union.

British Medical Journal.

SATURDAY, SEPTEMBER 24TH, 1921.

THE CLASSICS IN EDUCATION.

THE committee appointed by the Prime Minister "to inquire into the position of classics in the educational system of the United Kingdom" has issued its report[1] in a volume of some 330 pages; it is an important contribution to our knowledge of the educational system of our own country. The committee consisted of twenty members, with the Marquess of Crewe as chairman and Mr. Christopher Cookson as secretary, but included only one man of science, Professor A. N. Whitehead, F.R.S., who occupies the chair of applied mathematics at the Imperial College of Science.

Nearly all the members of the committee are or have been engaged in teaching the subject of which the report treats, and while this experience gives their opinions great weight when dealing with measures for the improvement of classical training, it tends rather to detract from their authority when they come to speak of the value of such training for the general life of the nation. Nevertheless the report bears every evidence of an attempt at impartiality despite obvious gaps in the evidence collected. A large number of witnesses were examined and many others submitted memoranda, but we have not been able to discover the name of a single medical man among those examined, and only an insignificant number of distinguished scientists were called; these are omissions which seriously diminish the value of the report.

There are very few educated men in this country—certainly very few in the medical profession—who do not realize the value of the classics in education and who do not desire that the fine discipline they can give, the great lessons they teach, and the strength and consolation their wonderful literature affords, shall be fully open to succeeding generations of Englishmen. Medical men, at least as much as any other class of the educated community, observe with regret the signs of decay in the study of the older humanities, and are eager to hear of remedies. But they know well that the first step towards treatment is diagnosis. *Quomodo curares si causas ignorares?* All who read the report in this spirit and consider how and why the classics have passed into the dangerous position in which all admit they now are, will naturally throw back their memories to their school or college days to see if their own experience can aid them to explain the present situation.

The causes of the classical decline may be divided into two groups, external and internal. Since the war and for some time previously, education has been increasingly vocational, and there has been a tendency to specialize earlier and earlier. It is a tendency that has probably had, on the whole, a deleterious effect, not only upon the intellectual calibre but also upon the efficiency of those entering the learned professions. Teachers have been pestered with the demand for "useful studies" by short-sighted parents who know nothing of the art of teaching and little of the ultimate bases of either success or happiness. For this state of affairs the teacher of classics has been in no way responsible, and from the criticisms that arise from it every man of sense and judgement will desire to protect him.

But some at least of the difficulties placed in the way of the classics are of internal origin. Not only have these studies been badly taught, sometimes very badly, but they have been enforced in the training of those for whom they were clearly unsuitable and who were often incapable of profiting by them. Young pupils, often of active and excellent mental equipment, have been deprived of the kind of instruction from which they might have profited by the short-sightedness of the classical teachers, who, ensconced behind the parapets erected by the universities, were at one time not only unprogressive themselves, but also among the most ardent and effective opponents of the introduction of newer studies—notably science, modern languages, and history—into the school curriculum. Fortunately this type of opposition is rapidly diminishing, if it has not already disappeared, but it has left behind a trail of difficulties if not of bitterness, which would have been easier to counter at an earlier stage and with a more willing, intelligent, and unselfish surrender of an impossible position.

So far as school instruction is concerned—and it is the schools and not the universities we are discussing—the question can really be divided into two parts, which treat respectively of the scholar who will leave school between 16 and 18 with a school-leaving certificate which exempts him from the entrance examination of many universities, and of the scholar who leaves school at about 16 without this certificate. For the first class, from which the majority of medical students is probably drawn, there can be little doubt that a training in at least one ancient language is an asset which will stand him in good stead through life. It is true that at some universities he can obtain a degree without any knowledge of the basic language of western civilization; but without some acquaintance with Latin a student is not as fully equipped as is desirable for entry into one of the learned professions. Even if he is unable to use the language in a literary sense, the power and assurance that the training gives, the insight it provides into the nature of his native tongue, and, above all, the insight into the nature of language itself, is obtainable in no other way. Almost all who have examined the evidence in an impartial spirit are in favour of the retention or introduction of Latin in the curriculum of boys and girls who are to attain the school-leaving certificate standard, even though they will have no direct use for this knowledge.

The remaining class is in a different position. For those who leave school at or soon after 16, a class which includes a certain number of medical students, the question is not so much "what can be included?" as "what may be left out with least danger?" We may divide the types of study of such children into five classes—Mathematics, Science, History, Literature, and Language. Each of these types of study has its own advantages and trains certain sides of the mind and character, but all, with the possible exception of mathematics, are alike necessary for any good education, for any training that will enable the man—of whom the child is the father—to exercise all his faculties in happiness and completeness, with advantage to himself and to his fellow citizens. The first three classes we are not now considering, the last two demand our attention. Literature, a department once much neglected in schools but now happily

[1] Report of the Committee appointed by the Prime Minister to inquire into the position of classics in the educational system of the United Kingdom. London: Published by H.M. Stationery Office. To be purchased through any bookseller. (Price 2s. net.)

brought into greater prominence, can be studied by children in this class only in the mother tongue. By children who leave school at 16 a foreign language, whether classical or modern, can hardly be mastered sufficiently for literary appreciation.

There remains the last type of study, that of language. The primary need of the student must naturally be for a correct working knowledge of the structure and nature of his own tongue, a condition all too rarely fulfilled, and such a knowledge, everyone, we believe, agrees, will be greatly aided by even a slight acquaintance with a foreign language. The choice in at least 99 per cent. of cases will be between (*a*) Latin, (*b*) French, (*c*) Latin, together with French. Undoubtedly in favour of Latin is the fact that no other tongue gives such an insight into the nature of language, and no other demands such exactness of thought. But there are certain very serious drawbacks. This degree of exactness is only brought out in the process of composition, and the pupils that we are considering will hardly reach the level of composition. It is true that as a substitute for composition sentences may be set to be turned into Latin, but this is a dull and tedious discipline, deadening alike to teacher and to taught, and largely responsible for the real hatred of the classical tongues often encountered among pupils at school and sometimes carried into after-life. Drill in set exercises may be necessary, but should be reduced to a minimum in those whose career is not to be of a literary kind. Yet without either composition or set exercises, and with no facility in reading or power to appreciate the literature, it is indeed difficult to see what the teaching of a language can do. Any objection against Latin applies with greater force to a combination of Latin and French. The level of composition cannot be attained, and so the main value of the subject is missed.

There remains to be considered only the teaching of a modern language, and this, in an imperfect world, with imperfect teachers and imperfect pupils, is on the whole the best of the three alternatives. It is true that French forms by no means so rigorous a mental discipline as Latin; it is true that its constructions are more idiomatic than logical, that it is less exact in its modes of expression, too easy and too much like English in form and feeling to give the degree of insight into the nature of language afforded by Latin. But, on the other hand, it is sufficiently easy for the "composition" level to be reached, with average teaching capacity; it not only provides an equipment that may be directly applied vocationally, but, even more important, it can make life happier and fuller and more worth living. While, therefore, we feel that the investigations of the Classical Committee have abundantly established the claims of the classics to form a part of the curriculum of all pupils who remain at school after the age of 16, we are unconvinced by arguments adduced in favour of teaching it to those who will never attain the level of the leaving certificate.

The case of Greek we must consider more briefly. The world's debt to Greece is so vast and varied that all must wish a knowledge of it to be widespread among our educated citizens. Greek literature is, perhaps, the noblest and the most human that the world has yet seen; it can never fade from the memory of the human race, least of all from the memory of medical men. Was not our art the creation of the Greeks, among whom it flourished and progressed for nigh a thousand years, and have they not given us our method of investigation, together with the basis of our clinical, anatomical, and physiological knowledge, and even our very nomenclature? Yet we must face the facts. Greek has now been abandoned as a compulsory subject by every university in the country. It is unlikely that boys and girls who are early destined for scientific pursuits and have little linguistic power will have much opportunity for its study. Many lovers of Greek are depressed and see little hope for their study in the general education of the rising generation. Yet the signatories of the report—and we agree with them—see many hopeful elements in the situation.

There are, moreover, certain special lines of work to which Greek scholars may in the near future devote themselves. The activity in the work of translation from the Greek that has been so pronounced of late years, and not least in the department of medicine, answers a real demand on the part of the reading public for a wider and deeper knowledge of the thought and activity of Greece; it is no ignoble demand, and one which it is surely a high function of Greek scholarship to meet. But for the ordinary boy or girl who is destined for a scientific career something can be done to arouse interest in the glory that was Greece. We need simple textbooks that will teach something of the thought and art and science of the Greeks. Some masters, too, finding the deeper study of the Greek language crowded by necessity out of the curriculum, have hit upon the device of spending a few hours each term in teaching the bare alphabet of Greek and in giving a small vocabulary, and then, to satisfy the curiosity thus aroused, giving in the Greek a few well-known sentences—for instance, from the Lord's Prayer. It is an example worthy of imitation; a knowledge such as this can be conveyed as a mere recreation in the course of a very few hours. It is better than nothing, and is probably about all that is in the end retained by the average man who has had a classical training at school. It will at least enable him to use a Greek lexicon, will aid him in understanding the etymology of the large scientific vocabulary of Greek origin, and may even help him to take up the language again in later years. It was all the school equipment that was received by Francis Adams, the most eminent Greek medical scholar that this country has produced in modern times.

The classics may have to occupy a new place and fulfil a new function in the education of the generations that are to be, but the friends of the classics may assure themselves that those generations will insist on a continuation and extension of the study of those civilizations which form the very basis of our own.

LYMPHOSARCOMA AND ALLIED CONDITIONS.

THE clinically and alliteratively allied diseases lymphosarcoma, leucosarcoma, lymphoid leukaemia, and lymphadenoma have been a fertile field for speculation and attempts at scientific classification, but the inherent difficulties have been rather aggravated than smoothed by the nomenclature thus introduced. The term "lymphosarcoma" has been particularly unfortunate in the different meanings that have from time to time been attached to it. In 1863 Virchow used it for lymphadenoma or Hodgkin's disease, the latter name being invented by the late Sir Samuel Wilks in 1865; Kundrat in 1893, allying it more closely with sarcoma, applied this name to a growth arising locally in lymphatic tissue, infiltrating the surrounding structures, and giving rise to metastases like a true malignant neoplasm. In this country it has often been loosely used to describe any form of

sarcoma in lymphatic glands, and from the morbid histologist's point of view it has been most satisfactorily confined to a round-celled sarcoma with a delicate reticulum resembling that found in lymphoid tissue, thus indicating its architecture and not its origin. Dr. Webster,[1] however, in a recent elaborate paper, to which further reference will be made, includes under the heading of lymphosarcoma all cases of lymphoid tumour or general lymphoid hyperplasia without leukaemic changes in the blood. Leucosarcoma, a term somewhat unfamiliar in this country, was coined by Sternberg in 1908, and has fortunately, perhaps from its youth, only one signification—namely, more or less extensive invasive tumours of lymphoid tissue in various situations, especially the thymus, the mediastinum, and the retroperitoneal space, with blood changes of the acute leukaemic type. Cohnheim's label of "pseudo-leukaemia" for a condition resembling leukaemia, except that the blood changes are absent, was appropriate enough in 1865, but is now mainly of historical interest, for a differential count would probably relegate many such cases to the category of aleukaemic leukaemia or examples of leukaemia in a phase without an increased number of leucocytes but with characteristic changes in the proportions of the varieties of white cells present.

The monograph by Dr. L. T. Webster, of the Pathological Department of the Johns Hopkins University, to which we have already referred, is entitled "Lymphosarcoma, lymphatic leukaemia, leucosarcoma, Hodgkin's disease"; in it he gives details of 123 cases of these conditions and draws some interesting conclusions. In the first place he separates Hodgkin's disease or lymphadenoma as a distinct disorder, which can be definitely diagnosed by microscopical examination of a single gland, and an accurate prognosis thus provided. Lymphosarcoma, on the other hand, cannot always be diagnosed microscopically, and in the early stages it is unwise to give a certain prognosis. Emphasis is laid on the close relationship between leucosarcoma, lymphosarcoma, and lymphoid leukaemia, for leucosarcoma appears to combine the features of lymphosarcoma and lymphoid leukaemia, and in certain circumstances a localized lymphosarcoma may become generalized and, with a blood picture of lymphoid leukaemia, terminate as leucosarcoma, the three conditions being different manifestations of the same disease; the term "lymphadenosis, leukaemic or aleukaemic," is suggested to express this idea and to simplify classification until the etiological agents are discovered. In early life the primary focus may be in the small intestine or mediastinum, and spreading locally or generally, it may run a rapid course to end as leucosarcoma; later in life the primary focus may be anywhere and the course protracted. In many respects the process is comparable with that in tuberculosis, which in the young, starting in the abdomen or chest, subsequently generalizes, and in adult life may assume odd forms—renal, uterine, cutaneous, and so forth.

The lymphoid infiltration variously designated "lymphosarcoma," "leucosarcoma," and "lymphoid leukaemia," is, from Dr. Webster's point of view, best regarded not as a neoplasm but as a direct response to some chemiotactic agent derived from a living organism; so long as this agent remains confined to one part of the body the lymphocytic accumulation remains local, but when the first spreads the second spreads also. Another point of prognostic significance may be provided by observations made during microscopic examination of glands removed during life for diagnosis; evidence of amoeboid movement of the lymphocytes, as seen in tissue culture or by their spindle or elongated forms in fixed sections, indicates a rapidly fatal course.

[1] L. T. Webster, *Johns Hopkins Hosp. Reports*, Baltimore, 1921, xx, 251-314.

THE INSURANCE MEDICAL SERVICE.

SUGGESTIONS have recently been made in the public press, and by the officials of some approved societies, that there will be a proposal to reduce the capitation fee on which the payment to insurance medical practitioners is based. These suggestions were preceded by persistent unfavourable criticisms of the treatment of insured persons by practitioners. There may have been individual cases in which such criticism was justified; but to apply it to insurance practitioners at large, or to the insurance medical service in general, is palpably unfair, and is, indeed, a libel on the medical profession. There is no doubt that insurance practitioners, as a whole, have given their best services, abundantly, to these patients and have faithfully carried out their obligations. It may be that a wide inquiry, properly conducted at the appropriate time, would be a good method of reducing such ill-informed criticism to its proper proportions.

If an inquiry of this kind were determined upon by the Government it is obvious that the proper time for any reconsideration of the capitation fee would be when the results of such inquiry were made known. Meanwhile it can only be said that to reduce remuneration already considered by most insurance practitioners to be inadequate does not seem a reasonable method of improving the character of the service given, and that the circumstances in which the Arbitrators' award of 11s. was given, on March 5th, 1920, do not seem to have changed at all in any material respect. It is to be hoped that the suggestions that such reduction is to be proposed are irresponsible. If not, a situation will arise of great importance to the medical profession and to the public, and the organized bodies of the profession must be prepared to defend their own and the public interest.

The Insurance Acts Committee has issued to Panel Committees a report of its action during the past year, together with recommendations on various matters, including that of the suggested reduction of the capitation fee. The part of the report dealing with the question of remuneration is published in this week's SUPPLEMENT. The Insurance Acts Committee is the recognized executive of the Conference of Local Medical and Panel Committees, and its policy is determined by the decisions of that body. Before the next annual Conference is held, on October 20th, Panel Committees throughout the country will have had an opportunity of discussing the whole question. It will be for the Conference to decide the action which it considers necessary and for the Insurance Acts Committee to carry out that policy.

ENERGY VALUES OF FOODS.

IN war time the computation of energy values yielded by different diets became the principal occupation of some and an incident in the life of most medical men. Although a few special analyses were published, the great bulk of the calculations were based upon the figures printed in Bulletin No. 28 of the United States Department of Agriculture, which contains the valuable work of Atwater and Bryant. No work on this scale had been undertaken in England, and Sir William Horrocks, A.M.S., wisely directed members of his staff to undertake an inquiry, the results

of which are contained in a report by Dr. R. H. A. Plimmer,[1] who has produced a dictionary of analyses which will be the *vade mecum* of all having to deal with diets for many years to come. The range of foodstuffs analysed is very wide and the arrangement of the results convenient; a specially useful feature for the busy medical officer is the expression of the energy yields in terms of 100 grams, 1 oz., and 1 lb. The usual physiological factors—namely, 4.1 for protein and carbohydrate, 9.3 for fat—have been employed. As Dr. Plimmer remarks, a fuller study of the biological values of different foods is needed before a suitable standard modification to allow for loss through digestion can be accepted. At present a discount of 10 per cent. from the total energy value of a mixed diet is usually accepted. Dr. Plimmer cautions the reader that this, like any other dictionary, must be used with discretion. Not only is the proper basis of the food value of meat—to take one example—the lean rather than the whole, but the ordinary routine method of analysis does not discriminate between the flesh of the different animals. "Modern biochemistry is beginning to insist upon the nature of the amino-acid content of the protein, that is, upon the *quality* of the protein. It is not known whether the meat of different animals has the same composition in amino acids, nor is it known whether fore-quarter meat differs from hind-quarter meat, or the meat of young and old animals. The eye and palate can detect the poorer qualities of meat. These contain more gristle and elastic tissue; it is known that the protein of elastic tissue differs from other proteins in composition. The quality of such a protein and also gelatin is not so good physiologically as that of muscle protein." Another interesting note is on the difference in composition between fresh and dried eggs; the latter contain a larger proportion of undetermined substance, and Dr. Plimmer thinks that if the eggs used in making the commercial dried eggs have been kept before preparation a de-amination of the protein due to metabolic changes would explain the analytical results. Many people will use this book without fully realizing the great expenditure of time and the high order of skill which made its composition possible. Dr. Plimmer has performed a public service of great value, for which medical officers of health and medical superintendents will be especially grateful.

PREHISTORIC TREPHINED SKULLS OF GREAT BRITAIN.

IT is particularly during the holiday quarter of the year that the desirability of a hobby, or avocation in contrast to vocation or calling as the late Sir William Osler expressed it, strikes the medical man when for a time he gets away from his daily routine. He has doubtless a wide field to choose from, but on the strength of the dictum that "the proper study of mankind is man," there is much to be said for the selection of anthropology, especially as a medical man starts with considerable advantages in tackling this subject. Dr. T. Wilson Parry[2] at any rate must be of this opinion, for he has devoted much time and energy to a special branch of the subject; thus he admits to having travelled more than 250 miles to Cardigan, only to find that the Port Talbot skull did not show evidence of trephining as he had been led to suspect. In prehistoric times trephining was much in vogue in various parts of the world for causes other than organic disease, especially to relieve demoniacal possession, or the modern epilepsy, by the crude method of making a hole in the man's head for the exit of the evil spirit. Long before trephining was used for organic disease this operation was performed by the tribal medicine-men with this object, and the practice seems to have originated independently in many countries. France is very rich in neolithic trephined skulls; Dr. Wilson Parry refers to the stock in the Musée Broca and to a private collection of no less than 167 specimens in the possession of a medical man. Great Britain, on the other hand, is strikingly poor in records of this strange superstition. In the course of eight years' inquiry Dr. Wilson Parry has found only eight specimens with any pretensions to prehistoric trephination, one of these being the Port Talbot skull already mentioned; critical examination has reduced this small total very seriously. One is really an example of the well-known symmetrical congenital deficiency in the parietal bones in the skull of a microcephalic idiot, the considerable deformity of which may serve as an excuse for the opinion previously expressed by a medical man that bilateral primitive trephining had been done for troublesome manifestations; two other specimens illustrate posthumous trephining on empty skulls, possibly carried out in order to suspend them as trophies; another skull shows signs of bone disease and evidence that a sequestrum may have been hurried away by artificial means; another skull exhibits trephining for bone disease, but the patient must have died during or shortly after the operation, as there is no sign of any attempt at repair. Only two skulls show unmistakable evidence of trephining during life, and survival for a long time after, very probably with death from some quite independent cause; of these two one is very possibly not British nor prehistoric in date. From much investigation of the primitive method of trephining—and a visit to the Wellcome Historical Museum will leave no doubt that Dr. Wilson Parry has taken great trouble to perfect his knowledge—the operation is reconstructed, and it is pointed out that of natural objects used as surgical implements perhaps none could be more aseptic than freshly struck off flint flakes or newly chipped obsidian, and that this may explain why recovery after primitive trephining was not so uncommon as might have been expected.

[1] *Analyses and Energy Values of Foods.* H.M. Stationery Office. Through any bookseller. Price 6s. net.

[2] T. Wilson Parry, *Proc. Roy. Soc. Med.*, 1921, xiv (Hist. Sect.). 27–42.

CHLORINATION OF WATER SUPPLIES.

IN a circular issued at the close of last week to local authorities the Ministry of Health makes certain suggestions for ensuring the purity of water supplies in the circumstances now existing.[1] While there is said to be no immediate cause for anxiety, it is pointed out that the prolonged drought adds to the risk of water-borne diseases. Moreover, the prevalence of epidemics, particularly cholera, in some foreign countries, calls for special vigilance. The first and most effective line of defence against a polluted water supply is boiling; for obvious reasons this, however, is rarely practicable on a large scale or for any length of time, and resort must therefore be made to some other treatment of suspected water. During the war chemical disinfection, which had previously been looked upon with some disfavour for routine purposes, proved its value and practicability, and the best method of securing rapid and effective sterilization by chemical means is now recognized to be the use of chlorine.[2] This is most readily available in the form of chloride of lime (bleaching powder), but the liquefied gas or liquid preparations of chlorine can also be employed. By the adoption of chlorination during the war an unprecedented immunity from water-borne diseases was obtained in the British armies. The process is simple, and, as Sir Alexander Houston has shown, effective chlorination confers absolute, not merely relative, protection. Moreover, properly chlorinated water is not only quite innocuous, but can also be rendered tasteless to all but the most fastidious palates. The method is described in sufficient detail in an appendix to the Ministry of Health's circular, and the department offers its services to any local authority needing further guidance or information. General advice is given in the following sentence: "The occurrence of any outbreak of disease of a diarrhoeal nature, whether mild or severe, should lead to an examina-

[1] Ministry of Health Circular, No. 241, September 15th, 1921.

[2] "Water Purification in the Field," BRITISH MEDICAL JOURNAL, May 26th, 1917, p. 688.

tion of the water supply; and, if it is found to be of doubtful purity, measures should be taken forthwith either to provide a fresh supply from a source which is above suspicion, or so to deal with the suspected water, either by boiling or by chlorination, that there is no possibility of its serving as a means of spreading disease."

BRACHIAL PLEXUS LESIONS AND RUDIMENTARY RIBS.

MR. PERCY SARGENT'S paper on lesions of the brachial plexus associated with rudimentary ribs,[1] which contains an analysis of fifty cases operated upon, the majority having been traced for a period of two to twelve years, supplements his communication on this subject to the Clinical Section of the Royal Society of Medicine in 1913, and may with advantage be read in conjunction with Drs. Edwin Bramwell and Dykes's article on rib pressure and the brachial plexus recently noticed in our columns (August 27th, 1921, p. 332). These cases are not very rare, but they have, no doubt, often been regarded as examples of brachial neuritis or neuralgia, uniradicular palsy, progressive muscular atrophy, occupation neurosis, writer's cramp, or symmetrical atrophy of the hands. But, as Mr. Sargent points out, it must now be remembered that cervical ribs may be found in persons presenting similar symptoms but due to entirely different causes, so that there is a risk that futile operations may be performed on patients suffering from syringomyelia, toxic neuritis, and other conditions wholly unconnected with a coexisting cervical rib. In the discussion of the relation between anomalies of the ribs and the nerves constituting the brachial plexus, he refers to his examination of the composition of the brachial plexus during operations on a number of patients with rudimentary ribs, and concludes that though there is generally some prefixation of the brachial plexus associated with cervical ribs, and some degree of post-fixation with abnormal first thoracic ribs, this relation is by no means constant, and that the form and size of the abnormal rib do not bear any constant relation to the composition of the plexus. Indeed, if the plexus were always prefixed for a complete segment when a well developed cervical rib is present, symptoms should be absent; this often happens, but, on the other hand, the frequency of cases of cervical ribs with symptoms relieved by operation shows that the modified anatomical relations do not always work out satisfactorily. Mr. Sargent confirms Dr. Bramwell's conclusion that with a post-fixed plexus symptoms referable to the first thoracic root may be due to pressure exerted by a normal first thoracic rib. He finds that of the clinical forms of cervical rib that most often requiring operative treatment is represented by an abnormally large non-jointed costal process, continued onwards as a dense fibrous band to be attached to the first thoracic rib behind the sulcus nervi brachialis. He describes the symptoms as undoubtedly traumatic in origin; a sudden onset may be due to a strain, but the gradual appearance of symptoms results from the continued friction of the eighth cervical root or the lowest cord of the plexus caused by tightening of the band during respiration and movements of the arms; it is noteworthy in this connexion that nearly all the patients were engaged in active work. The symptoms are grouped into those due to damage of (1) somatic afferent fibres—namely, neuralgic pain and disturbances of cutaneous and deep sensibility; of (2) somatic efferent fibres—namely, wasting, weakness, and alteration of electrical excitability in the affected muscles; and of (3) sympathetic fibres—namely, circulatory disturbances (coldness, cyanosis, oedema) and certain paraesthesias (tingling, numbness, and feeling of coldness or swelling). The so-called "vascular" symptoms are vasomotor in origin and due to injury of the sympathetic fibres shortly after their entrance into the eighth cervical and first thoracic roots; the only instance in which Mr. Sargent has seen the subclavian artery pass over an abnormal rib was in a case of a rudimentary first thoracic rib. Analysis of the 50 cases showed that pain was cured in 19 cases and relieved in 8. As Sir W. Thorburn had stated in 1913 that he had never seen muscular wasting entirely cured, Mr. Sargent carefully criticized his 31 cases, and found that in 12 there was complete cure, in 12 incomplete improvement, and in 7 no improvement; the vasomotor symptoms were cured in 14 cases, relieved in 6, and not relieved in 2. Since the association of symptoms with cervical ribs has become generally recognized only in this century, it is interesting to note that Mr. Sargent has brought to light a case operated upon by Coote in 1861.

[1] P. Sargent, *Brain*, London, 1921, xliv, 95-124.

THE PROBLEM OF DEGENERACY.

IN a thoughtful and well-balanced paper, now reprinted in America, Dr. A. F. Tredgold has discussed the problem of degeneracy.[1] The experience and researches of the writer enable him to write with authority, and his views are of profound interest to the sociologist at the present time. By the term "degeneracy" is generally understood any marked falling away, either morally, mentally, or physically, from the average condition of the nation or race. Dr. Tredgold advocates a more restricted use of this term, and would regard degeneracy as the expression of a germ variation—an innate defect of potentiality. Those somatic defects which are due to inadequate or adverse environmental influences acting upon the embryo he prefers to include under the term "decadency." He discusses the difficult problem as to the causation of the "retrogressive" variations which lie at the root of social degeneracy, and refers especially to the views that germinal variations are to be regarded as the perpetuation of a defect which has existed in certain strains or stocks of the human race from the very beginning or from a simian ancestry; that they are spontaneous in origin, or that they have neither existed *ab initio* nor are spontaneous in origin, but are produced by the operation of natural processes and in obedience to natural laws. In the opinion of Dr. Tredgold the last is not only the most reasonable view in itself, but the only one which is supported by definite evidence; and although it is not yet possible to explain the manner of production of these germ variations, he contends that it is possible to advance certain considerations which carry us a step further towards the elucidation of the problem. Since differences of vulnerability of the tissues to disease exist in different individuals, so similar differences may exist in the case of the germ plasm. He suggests that in view of the evidence which is now available and is daily increasing, it is impossible to deny that germ cells may be adversely affected by the environment, and his own observations lead him to think that alcoholism, tuberculosis, and venereal diseases play an important part in this respect. The devitalization of the germ plasm thus produced has not only an unfavourable effect upon the immediately resulting offspring, but, since it is fundamental, may involve subsequent generations. The resulting degeneracy finds its commonest expression in a defective and abnormal constitution of the highest parts of the nervous system—in an impairment of neuronic potentiality which is germinal in origin, and may be transmitted generation after generation. Thus we have the pressing social problems of mental deficiency, insanity, and the various forms of inadequacy and instability. And however we may protect these abnormal types, create atmospheres to which they are able to make adjustments, endeavour to prevent or cure the various manifestations of their inferiority, the hereditary factor which Dr. Tredgold stresses lurks always in the background. At a time when the nation has been

[1] *The Problem of Degeneracy.* From the Smithsonian Report for 1918. Publication 2573. Washington: Government Printing Office. 1920. (Reprinted from the *Quarterly Review.*)

depleted of some of its best the eugenic problem becomes one of more than usual importance, and it is much to be hoped that the present need for economy may not react too unfavourably on essential health services. Those who are called upon to administer the Mental Deficiency Act—a measure directly concerned with the question of mental degeneracy — are certainly much hampered in their efforts by the present stringency in respect to financial assistance.

PUBLIC HEALTH IN ONTARIO.

ON the completion of ten years' service in charge of the Provincial Board of Health for Ontario, Dr. John W. S. McCullough has published an interesting review of the progress of public health in Ontario during the last decade.[1] The earliest recognition of public health in Canada was the enactment of the Quarantine Act in 1794. The epidemic of cholera from 1832 to 1834 stimulated the Legislature of Upper Canada to action, and an Act to establish boards of health was passed by that body; but from this time to 1848 there was little or no further activity in respect to public health matters. In 1847, of 98,106 immigrants passed through the port of Quebec, over 5,000 died of typhus fever and were buried at Grosse Isle. An outbreak of cholera was doubtless the reason for an enactment establishing a Central Board of Health in 1849, and another outbreak in 1866 induced the Government to pass new regulations for the control of that disease. The confederation of the provinces of Canada took place in 1867, and in 1873 a Public Health Act passed in Ontario permitted the appointment of members of municipal councils and trustees of police villages to act as health officials—"local health committees," which were the forerunners of the present local boards of health. In 1882 the Provincial Board of Health for Ontario was established, and Dr. Peter H. Bryce was appointed permanent secretary, a post which he retained until 1904, when he became chief medical inspector to the Department of the Interior at Ottawa. He is the sole survivor of the early members of the Board, and public health development in Ontario and in Canada has owed much to his exertions. He has lived to compare the grant in 1882 of 4,000 dollars for public health services in the province of Ontario with approximately 550,000 dollars to-day. In Ontario progress in public health has been necessarily slow owing to the immense area of the province (some 403,000 square miles), the comparatively small and scattered population, and the difficulty of obtaining financial support from the lack of knowledge of the value of preventive medicine among the public. The ability and the energy of the successive medical officers, aided by the progressive spirit of the members of the succeeding boards, gradually brought about a change in public opinion. In 1912 the consolidation of the public health laws was secured, and the appointment of ten full-time district officers of health was provided for. There are now about 730 medical officers of health in Ontario, 90 per cent. of whom are part-time officers, and, as Dr. McCullough points out, "poorly paid at that." He makes the plea that the public must learn that prevention of disease is purchasable, and that, like everything else, cheap service is generally the dearest in the long run. This, however, appears be the biggest fly in his ointment, and he must be congratulated both on his publication and upon the progress which his province has made under his and his predecessors' guidance.

COURSES IN PSYCHOLOGICAL MEDICINE AT BETHLEM HOSPITAL.

To those who work in the field of psychological medicine, and, even more, those who propose to make their career in this branch of medicine, the possession of the diploma in this subject which is now granted by several universities has become a matter of importance, if not of necessity. To meet the demand for the instruction requisite for this diploma courses have for some time past been given at the Maudsley Hospital, and the Bethlem Royal Hospital has now arranged a full course of lectures and practical instruction, which will commence early in October. The course at Bethlem Hospital includes lectures and demonstrations on the anatomy, histology, and physiology of the nervous system; lectures on psychology, with demonstrations on experimental psychology; lectures on neurology, with demonstrations of the morbid anatomy and morbid histology of the nervous system; a series of lectures with clinical demonstrations on psychological medicine in its various branches; and a series of lectures with clinical demonstrations on mental deficiency. The lecturers include Sir Maurice Craig, Dr. S. A. Kinnier Wilson, Dr. William Brown, Dr. W. H. Rivers Rivers, Dr. E. D. Macnamara, Dr. A. F. Tredgold, Dr. W. H. B. Stoddart, Dr. R. H. Steen, and Dr. J. G. Porter Phillips, the physician superintendent, and other members of the staff. The lectures and demonstrations will be given and the practical instruction carried out according to a time table, which may be obtained on application to the Physician Superintendent, Bethlem Royal Hospital, S.E.1. The fees are 15 guineas for the full course and 10 guineas for either the first or the second part of the course.

[1] *1910–20: A Review of Ten Years' Progress.* By John W. S. McCullough. 1921. Provincial Board of Health, Ontario.

THE BOARD OF CONTROL'S REPORT.

THE seventh annual report of the Board of Control, for the year 1920, has just been published as a Blue Book; it is dated June 1st, 1921.[1] For reasons of economy it has been decided to suspend the publication of Part II of this report, which includes the Commissioners' report of their visits and most of the statistical tables. The year under review is noteworthy because in May, 1920, the bulk of the powers of the Home Secretary under enactments relating to lunacy and mental deficiency were transferred by Order in Council to the Minister of Health. At the beginning of 1921 the number of notified insane persons under care in England and Wales was 120,344, being an increase of 3,580 on that recorded on January 1st, 1920. The explanation of this is provided by a decrease of 3,565 in the number of deaths in institutions in 1920. The Board expresses the hope that a comprehensive measure for dealing with early cases of insanity without certification, which would have wide operation among all classes of the community, will be submitted to Parliament at the earliest practicable date. In the present report, to which we hope to refer later in more detail, the Commissioners deal with two or three specific complaints relating to certain asylums, into which special investigation was made.

[1] [Cmd. 221.] 1921. To be purchased through any bookseller or direct from H.M. Stationery Office. Price 1s. 6d. net.

THE Harveian Oration before the Royal College of Physicians of London will be delivered by Dr. Herbert Spencer on Tuesday, October 18th, at 4 p.m. The Mitchell lecture by Dr. Parkes Weber, on the relation of tuberculosis to general conditions of the body and diseases other than tuberculosis, will be given on November 1st at 5 p.m. Dr. Michael Grabham will deliver the Bradshaw lecture, on subtropical esculents, on November 3rd at 5 p.m.; and the FitzPatrick lectures, on Hippocrates in relation to the philosophy of his time, will be given by Dr. R. O. Moon on November 8th and 10th at 5 p.m.

THE Medical Research Council, in consultation with the Ministry of Health, has appointed the following Committee for the investigation of the causes of dental decay: Professor W. D. Halliburton, M.D., F.R.S. (Chairman), Dr. Norman G. Bennett, Dr. Leonard Colebrook, Dr. J. M. Hamill, O.B.E., Sir Arthur Keith, M.D., F.R.S., Mrs. Edward Mellanby, Mr. J. Howard Mummery, C.B.E., and Dr. C. J. Thomas. By permission of the Ministry of Health, Dr. J. M. Hamill will act as Secretary to the Committee.

REFLECTIONS OF A GENERAL PRACTITIONER.*

BY

A. MANKNELL, M.B., B.S.LOND.,

BRADFORD.

MANY worthy and learned men have gone before me in this office, men rich in experience, with the ability to place before you the critical results of acute observation and clearly drawn inferences; men who have added to the lustre of the position and to the sum of medical knowledge both in theory and practice. I have no such gems of learning and erudition to display, but must content myself with a few humdrum reflections upon the general practitioner and the growth of his knowledge and attainments.

Not to many of us is it granted to reach the perfection of knowledge and skill ascribed by Chaucer to his "Doctour of Phisike"—

> "He knew the cause of every maladye,
> Were it of hot or cold, or moiste or drye,
> And when engendred, and of what humour,
> He was a verrey parfit practisour."

Our pathologists, epidemiologists, and bacteriologists, searching out the beginnings of life and origins of disease, must read these words with envy deep-seated in their hearts. But possibly they, unlike the "verrey parfit practisour," are not "grounded in Astronomye." And we in the humbler walks of medical life may wonder how "he kept his pacient wonderfully well." Possibly it was because "anon he gave the sike man his boote."

But we must glide over the intervening centuries, with their intermingling of medicine and magic, their spells, charms, and incantations, and come down to the more prosaic times in which we live. Of late years the general practitioner has been greatly in the eye of the public. Around him many debates and discussions have centred. In the past his history has been one of constant struggle against prejudice without and instability within. Too often has he ploughed his lonely furrow and toiled in more or less obscure seclusion, whilst the limelight has been directed upon his more fortunate consultant brother. But events of the last ten or twelve years have dragged him from his rôle of the quiet and unostentatious worker and have subjected him to the criticism of all sorts and conditions of men—both inside and outside his own profession.

He has been the subject of ardent debates amongst laymen, of tender solicitude upon the part of prominent officials of friendly societies, of anxious concern to his fellows, and, of course, of the disinterested attentions of very superior officials at Whitehall. He is belauded and criticized by turns; condemned, exhorted, and legislated for. Should he be associated with any public service, regulations are showered upon him, and he goes in peril of being bound hand and foot in red tape. By training and occupation the general practitioner is the most individualistic of persons. His whole life is occupied in attaining and developing the personal touch. Whatever his scientific and professional accomplishments may be, he is in danger of failure, more or less complete, if he does not succeed in coming into personal and living contact with his patients.

From his cradle in the medical school he is taught to rely first and foremost upon his own judgement and skill, to be ready of resource, to adapt his methods to his surroundings, and to be prepared, if necessary, to meet all situations and deal with all sudden eventualities with promptitude, decision, and dispatch. He is trained to observe for himself, reason for himself, and act for himself, accepting grave and insistent responsibility in the interest of his patient suddenly confronted by any one of the dire crises which lurk unseen around the unsuspecting wayfarers upon the road of life. He is told many things about the human body and its vagaries, and how to deal more or less efficiently with its variations from health. He receives too little instruction in his relation to his patients, to the community, and to his fellow practitioners. Finally he is launched upon the world with the assurance upon a roll of parchment that he has been examined in this, that, and the other, and found to be a suitable person to practise the arts of medicine, surgery, and midwifery. What wonder, then, that, living his life in the public gaze of the little world in which he moves, he constantly lays himself open to misunderstanding, criticism, and even to malicious slander.

So it comes to pass that this intense individualist, too often self-centred in his work, is harassed by advice as to how to make more of his life and opportunities. By some he is implored to save his soul alive and deliver himself from the pressure of his environment and his own native inertia by becoming a trade unionist. By others he is urged to communal activities; or, again, he is forced into a more or less questionable position as a grade of civil servant. Even his own familiar friend, a member of his own profession, has lifted up his heel against him.* By this candid critic, writing in a pseudo-philosophical strain, the general practitioner is assured that his position in society and in the regard of his fellow men is threatened, even if not doomed to degradation. He is told that he is regarded by the working classes, for whom his labours have ever been freely and cheerfully performed, as being the most mercenary of craftsmen—a tradesman in the worst sense of the term. This critic generously admits that, whilst desirous of making as much money as possible, the great bulk of general practitioners are truly willing to give their best in the interests of their patients; but he avers that there be many, and too many, in the ranks who can only be described as "the cad in medicine"—to whom the oath of Hippocrates is a vanished memory—whose only object is to get the most and give the least, and play the parasite on their fellow men. If this be truly the considered opinion of the East End of London we tremble to contemplate the position which we must occupy in the regard of the hard headed sons of the North. But we resent and repudiate such a view.

As a side-light upon the mercenary character of the general practitioner one may cite the recent action of the Panel Committee of Sheffield—practitioners in our own Branch area—in giving £1,000 to the Sheffield University, "to promote the policy of bringing physiology into closer relation with the practice and teaching of clinical medicine." This was a purely voluntary effort, the means being found by the judicious use of a voluntary panel levy. Even in discussing the National Insurance Bill Mr. Lloyd George made a great point of the fact that it would reduce, if not abolish, what he gracefully referred to as "wrangling in the sick-room" as to fees and emoluments. I venture to think that there have been far more wrangling and disputations over his annoying certificates and the situations created by his multitudinous regulations than ever took place between the ill-paid practitioner and his non-paying patients.

But to turn for a moment to the other side of the picture. The general practitioner has been belauded and encouraged by other, and, as we hope, more generous and truthful observers. They tell him that the future glory of the profession is his to realize; that he is the basis upon which is to be built the magnificent edifice of a truly National Medical Service which is to banish pain, disease and suffering and to usher in a glorious aeon of virile centenarians. He is expected to be the embodiment of knowledge, wisdom, understanding, insight, tact, skill, courage, and numberless other virtues, accomplishments and attributes. Like Caesar's wife he must be above suspicion—but may not be trusted to have a stock of panel dressings lest he divert them to his own use. Like St. Paul he must be all things to all men, but, unlike the apostle, he may not speak his mind too freely without fear or favour.

Yet the general practitioner is more than an individualist—he is also, in his highest moments, an idealist. Confronted with the many problems of disease and abnormality, he is ever reaching forward to the time when things now obscure shall be made plain, and when we shall no longer see through a glass darkly, but, as Kipling sings of the true artist—

> Each for the joy of the working
> And each in his separate star,
> Shall draw the thing as he sees it
> For the God of things as They Are!

We admit, as general practitioners, many delinquencies, and we acknowledge many shortcomings. We grant that, in the rush of work, our clinical notes are apt to be fragmentary and lacking in cohesion; that the beginnings of disease, which come so frequently under our notice, are not recorded in such a way as to form reliable data for the establishment of broad general principles, or the compilation of brilliant monographs; that these same early symptoms and apparently unimportant signs appear as a mass of inco-ordinated and uncorrelated details. But we have great hopes for the future, and believe that, out of the chaos of multitudinous minor symptoms, much useful and concrete information may emerge; and that the foundations of medical knowledge may therefore be broadened and deepened, to the strengthening and establishing

* President'al address delivered before the annual meeting of the Yorkshire Branch of the British Medical Association, June, 1921.

* *Lancet*, February 26th, 1921.

of the great temple of science, in the building of which we are labourers—ardent, if unworthy and obscure. We may not all equal the achievements of Sir James Mackenzie in his wonderful clinical work, carefully carried out during the pursuit of a busy general practice, but his example is a stimulus to us and one which each may emulate and follow, even if it be afar off. The system of clinical research established by him at St. Andrews will have far-reaching effects and is capable of great development in many centres in the country. It is a great idea, and it would be well if every teaching centre should gather around it the men of its own area in general practice, and bind them into some similar band of workers to forward the cause of medical science. Surely there must be such men within easy reach of every school of medicine who could give a course of lectures or demonstrations, chiefly of a clinical nature, to those who, at present, are apt to see disease only when well established and presenting the features well known and described in textbooks, and systematic lectures. Young practitioners would thereby be saved many of the rude shocks which meet them upon commencing private work, when they find how obstinately disease declines to present itself in textbook shape and how difficult diagnosis can be before the characteristic symptoms of hospital cases have fully developed. They would learn that every stomach-ache is not appendicitis, whilst recognizing that this fell disease must be ever in their mind. How many cases of very early pneumonia are seen by the hospital student?

By the formation of such clinical research associations amongst general practitioners a greater zest would be given to our domiciliary work. The feeling of comradeship engendered, together with the diminution of the sense of aloofness, too often prominent in our lives, would make for progress and advancement. Rare traits of character and ability would be brought to light in hitherto unsuspected quarters and mutual respect would be cultivated, which is not born of private antagonism under present conditions of life. Such work and association in research would better equip the general practitioner for taking his proper place in any hospital appointments which may open under the Dawson or some similar scheme for a real national, but not bureaucratic, system of medical service. Further, it would tend to the diminution of empiricism and increase the scope of rational treatment. Empiricism, very fortunately, has been a steadily declining factor in the practice of medicine. Ever since men ceased to draw all their ideas from the writings of dead philosophers, the ancient fathers of medicine, and began to observe, inquire, and infer for themselves, rational treatment has progressed by leaps and bounds. Anatomy, physiology, bacteriology, pathology, chemistry, and physical science have all added their quota to the building up of a science daily becoming more exact. And many empirical ideas have been found to have their roots deeply embedded in the truth and have been revivified and established firmly as medical facts.

The early Victorian and pre-Victorian novelists were not a little unkind—perhaps with some justice—to the medical men of their day, describing them alternately as empty-headed pomposities or fussy ignoramuses, bound hand and foot to bleeding, leeching, and sweating, and given to the use of high-sounding phrases of unmeaning dog Latin—as, for example, Fielding's Dr. Barnabas. But gradually there came a great change, and out of such unpromising material as the Bob Sawyers and Ben Allens of a past generation there was evolved a race of sturdy, independent practitioners. The family doctor arose who was not only medical adviser, but in many cases the guide, philosopher, and friend, to whose kindly judgement and advice manifold domestic and other difficulties were submitted. Mr. T. Pridgin Teale still feels that the great need is the making of good family doctors. "Nowadays," he says, "so many young fellows wish to go into specialities. To be a good family doctor is about the finest medical position a man can have. I have come across some splendid examples of them, men who can be the very greatest comfort to a family in distress. The work calls for him to be a gentleman in the truest sense of the word, and some of the finest examples have been country medical men." We may remember, in passing, that the establishment of the medical school at Leeds, with all its glorious traditions, especially in surgery, was the work of general practitioners in the old apprentice days. For many years all the staff were in general practice in addition to their consulting work. We all deplore the threatened passing of the genial and true-hearted family practitioner, who seems doomed to vanish in the flood of superficial knowledge which is overflowing the country. His personal and family influence have been undermined to the point of threatened extinction by the increased activities of the State in communal medicine.

The great tendency to convert the doctor into a civil servant, the disintegrating effect of the National Insurance Act, and the openly expressed desires of many, both within and without the profession, for a whole-time medical service, have all conspired against the confidential position of the general practitioner. The wrangle about money—hitherto confined, when existent, to the privacy of the house—has been transferred to the senate, the conference chamber, and the columns of the daily press; and the commercialism, if any, exhibited by the profession has been thrust upon us by the politicians and by men who reckon all things in terms of pounds, shillings, and pence, and reck little of conditions of life and the true magnitude of service rendered. During the controversy upon the Insurance Act some of us in Bradford met in debate certain political supporters of the Act. One of them exclaimed in horror: "Why, some of you will be getting £1,000 a year!" Appalling thought! Could any professional man possibly be worth it? It is true that during the last thirty or forty years medical education has immeasurably advanced; we are all expected to know something of many special subjects, and specialisms and specialists have multiplied greatly. More than ever medicine ranks as the profession for which the preparation, even for general practitioners, is longer, more arduous, and more exacting than in any other. When we consider the many and varied examinations, the long lists of subjects, general and special, of medical and surgical knowledge which have to be faced by the present-day student we cannot fail to see that the term "learned profession" can be no empty-sounding title to those who would secure a place within its ranks. Surely the labourer is worthy of his hire!

As days and years pass, we who have borne to some extent the burden and the heat of the day perchance find ourselves wallowing in the wake of the ship of medical progress. With difficulty do we keep our little craft in the right track, and we struggle on in our attempt to keep abreast of ever-increasing knowledge. At the same time we remember many ideas, theories, and methods of practice which have come and gone. They have been greatly boomed, indiscreetly exploited, and hailed as the last word in their particular sphere of thought and action. How many such have sunk into oblivion and are now remembered only with the indulgent smile of presumably greater knowledge. But some, such as the great work of Lister, have laid the foundation for further progress and for the erection of a more glorious edifice of practice and achievement.

Many of us remember the time when no abdominal case was nursed in the general ward, when the patient must not be carried along the corridor to the theatre, but the operation had to be performed in a special ward and the patient lifted straight into bed in the same room; when the unlucky house-surgeon had to go up every four hours to drain the fluid out of Douglas's pouch and turn the Bantock's tube. The whole performance was conducted under the hissing Lister's carbolic spray, lest any stray germ should crawl in and set up trouble. At that day the spray was in constant foggy evidence at all operations, and anxious dressers rushed from ward to ward bearing the steaming apparatus for an antiseptic dressing. But, to quote once more the words of Mr. Pridgin Teale, "we in Leeds worked right through the carbolic acid period and went on and on. When Sir Berkeley Moynihan became surgeon he took up with vigour the complete Lister teaching, and we passed from the antiseptic to the aseptic period." These events were taking place at the time when Erichsen, in the 1887 edition of his monumental work on the *Science and Art of Surgery*, was saying that an art could only be carried to a certain definite point of excellence—could not be perfected beyond certain attainable limits. That in the art of surgery we had nearly reached these final limits there can be little question. In the scientific branch of surgery we were but as yet on the threshold. In 1921 Mr. Teale says that the modern medical man is terribly scientific, and Sir Berkeley Moynihan says, "To-day the view prevails that surgery has reached her destiny and is almost a finished art." He continues, "We can look on it now as just the key which has been made to unlock a great many closed doors. It is only just beginning its true function." How similar the statements with nearly forty years' experience between them!

From general considerations as to what manner of men we practitioners be, we pass now to a few points in our relation to the community and to the State. And first I would desire to note one point in our duty

to ourselves. Too often we hear it said of one untimely cut off, "Poor fellow, he died before he could save anything for his family," and our charitable institutions have to step in and good-heartedly do what they can to help. Much better would it be if every newly qualified man would at once insure his life to his fullest ability, increasing such provision as his financial position improves. How much misery would be avoided and how many rough places be made plain! I would earnestly commend this to the attention of our younger colleagues.

Then, too, there are our duties to our fellow practitioners. We should cultivate the spirit of mutual helpfulness and curb the feeling of antagonism and competition. Competition there must be; but this view need not exclude friendly relations. The meeting together in scientific or social gatherings tends to teach us more of one another and to show us that our associates in practice are not such bad fellows after all. The friendly help tendered in times of sickness is a bond of unity not likely to be broken, and in this matter I tender my grateful thanks for help in time of need. The general public have a great idea of what they call medical etiquette. I have yet to learn that so-called medical etiquette is anything more than the good old rule of doing unto others as you would that they should do unto you. A short time ago I was assured by a Church dignitary that under our "rules" a man could not even change his doctor. The reply was obvious. In spite of all our weaknesses and the strictures of captious critics, the spirit of the oath of Hippocrates rules our professional life and regulates our relations to each other and to our patients.

In this our own Association we are banded together for the extension of knowledge and the interchange of experience, as well as for the promotion of the honour and dignity of the profession. We are united by the moral laws of community of interest and of purpose, of endeavour, and of aspirations. Our relationship to the community in general and to the State has undergone great changes during the last twenty or thirty years. The well-known altruism of the profession has been exploited by the State, by clubs, by pseudo-philanthropists, and the general public. To such an extent has this gone that services, cheerfully rendered to necessity, have been demanded as a right, and any attempt to place such services upon a sound and reasonable basis has been resented as something bordering upon extortion and commercialism. The low fees of contract practice instituted in a kindly spirit for the benefit of low wages and large families were barefacedly quoted by an eloquent Chancellor as the basis of pay for his distribution of the rare and refreshing fruit of his Insurance Act. Step by step the municipality and the State have invaded the domain of the private practitioner. Not content with the general supervision and regulation of the health and conditions of life of the people, they have filched from us duties and privileges heretofore regarded as our own: they have come between us and our patients, and have laid upon us other duties and responsibilities undreamed of by our predecessors. The unrequited issue of the ordinary death certificate, open to all sorts of curious eyes, the notification of infectious diseases in an ever-lengthening chain—now at least twenty in number—that of industrial diseases, of births of infants, the proposed compulsory notification of venereal disease, together with the filing of records, the secrecy of which is not above suspicion—all these things, necessary as some may be, bring us into daily contact, if not conflict, with the general public, and undermine our position as the confidential friends and advisers of our patients. Now one reads of a proposal that notification of tuberculosis should follow a patient from M.O.H. to M.O.H. wherever the victim moves, thus justifying the complaint and criticism of one of my patients that he would become a marked man—at his home, his work, and wherever he removed.

How has this situation arisen? It is the natural and logical outcome of the altruistic desire of our profession for the betterment of the nation. In season and out of season we have preached care for the health of the community, regulated conditions of industrial life, demolition of slum areas, better housing, pure water, pure milk, and healthy surroundings. But the local authorities in particular, forgetting the origin of their knowledge and the inspiration of their enthusiasm, despise and repudiate the criticism of the profession upon their methods, uttering the parrot cry of "self-interest" and accusing us of having respect to our own pockets rather than a desire for the welfare and health of the body corporate. They thrust upon us and upon the long-suffering ratepayer grandiose schemes of communal medicine, indifferent alike to the cost of their ventures and the truest interest of all concerned. There is a feverish haste to be in the forefront of movement—which they call "progress"—too often forgetting their position as guardians and executors of preventive medicine and unnecessarily invading the domain of curative medicine. They are apt to establish large coteries of *soi-disant* specialists, of recent qualification and immature growth, to the exclusion of men who live among the people, whose lives and interests are bound up with those of the people whom they serve. There must be some form of communal medicine, but in it the general practitioner should be duly and effectively recognized. It is quite true that, as the Dawson report says,

> "Preventive and curative medicine cannot be separated on any sound principle, but they need not be too closely identified, but rather they should be brought together in close co-ordination. They must likewise be brought within the sphere of the general practitioner, whose duties should embrace the work of communal as well as of individual medicine. It appears that the present trend of the public health service towards the inclusion of certain special branches of curative work is tending to deprive both the medical student and the practitioner of the experience they need in these directions."

There are many things in which really expert advice is necessary, as in housing, drainage, food inspection, water supply, control of epidemic disease, and so on; but as general practitioners we object to the wholesale creation of clinics, whether of children, schools, infants, or antenatal, with many others staffed by newly-qualified practitioners fresh from the school and hospital, who have little, if any, experience of the great world of medicine which they have but just entered, who possess but dim ideas of the work and difficulties of the general practitioner, and are ignorant of the daily life of those whom they are called upon to treat. We think that in most of these cases the services of the general practitioner should be sought and used to the uttermost. Administrative officers there must always be, but of purely clinical officers, except of highly specialized character, there need be but few. Much has been said and written of the need for the knowledge of the beginnings of disease, and who but the general practitioner really sees disease in its earliest stages and in its protean aspects before its real character has been overlaid and masked by complications and accessory conditions? But the ordinary medical attendant must see to it that he leave no stone unturned so to keep himself abreast of the new methods of treatment and new conceptions of disease that he is ready and willing to step in and undertake the treatment and prevention of disease as opportunities arise. My lamented and revered teacher, Mr. A. F. McGill, would say to any obtrusive student, "Ah! Mr. Blank, knowledge comes but wisdom lingers." Let us hope that, with all the avenues of knowledge open to our rising generation, wisdom may follow close upon the heels of knowledge. Thus shall we find the general practitioner taking a greater and nobler share in the development of the Art and Science of Medicine in all its varied branches, and more firmly establishing himself as an integral and essential part of the whole fabric.

THE WAR WORK OF THE RED CROSS.

BEFORE the war it was recognized that the Red Cross societies would be of value during a campaign in affording to the Army Medical Service the organized provision of supplementary aid. If, during the great war, this had been all that the British societies accomplished it would have been work well worth doing, and these bodies would fully have earned the gratitude of their country. It is common knowledge, however, that this was by no means the whole extent of the work of the Red Cross societies. Yet, until the appearance recently of the general report*—a stout volume of over 800 pages—of the Joint Committees of the British Red Cross Society and the Order of St. John of Jerusalem in England, few can have realized how great were the war labours of these societies. Their services were such that they were able from the beginning to inspire the military authorities with confidence, and cordial relations were established between the Red Cross, the R.A.M.C., and the R.A.S.C., without which the success of their work would have been impossible.

Co-operation with the Army Medical Service.

In regard to the functions of Red Cross organizations in time of war it is the duty of the Government to provide for the assembling of wounded from the field of battle,

*Reports by the Joint War Committee and the Joint War Finance Committee of the British Red Cross Society and the Order of St. John of Jerusalem in England, 1914-1919. London: H.M. Stationery Office. 1921. (Pp. 823, illustrated. 12s. 6d. net).

their transfer to hospital, and their treatment, doing all that is necessary to enable them to return to duty or civil life as soon as possible. In a great war the Army Medical Service must draw largely on the civil population for additional doctors, nurses, and for ambulance men, etc.; moreover, it requires very extensive extra hospital accommodation. Thus, the Army Medical Service finds itself on short notice obliged to organize on a scale which makes efficient assistance offered to it from outside very welcome. The Red Cross provides such assistance. In the late war auxiliary hospitals, equipped and supplied by Red Cross personnel, enabled large numbers of officers and men to be treated in comparative comfort, if only by the relief afforded to congested army hospitals. The quick supply of additional army stores was frequently of assistance to the Army Medical Service, and many army surgeons, owing to the extra stores being available at the right moment, were able to work with better advantage to the patients than would have been the case had they been trammelled by the procedure which a Government department must necessarily follow in dealing with stores of all kinds. The Red Cross, in addition to assistance rendered in the field, in hospitals, convalescent homes, and in connexion with the after care of disabled men, has proved of great value in succouring prisoners of war in enemy countries. The report quotes the remarks of Sir George Makins to the effect that the work of the Joint Committee proved afresh the essential need of a voluntary organization such as the Red Cross working side by side and in close collaboration with the medical service of the army.

Red Cross Achievements.

The first great opportunity of the Red Cross came with the retreat of the army to the lines of the Marne and the Aisne. The general hospitals and equipment were scattered, and it became necessary to establish service units with equipment hastily assembled in the many towns on the long line of communication, and at once the accumulated stores of the Society were called upon. The next great opportunity came in aiding the transport of the wounded. The British army was already, in August, 1914, in possession of several well-equipped hospital trains in England, but they were not gauged to work on French railways. The lack of modern railway facilities at the commencement of the war led to much suffering, but improvements were rapidly made, and later the Red Cross Society contributed four completely equipped trains to add to those supplied by the army. A still greater service was rendered by the Red Cross in providing a large number of motor cars and motor ambulances. The special credit appropriately belonging to the Red Cross, says Sir George Makins, lay in the energy with which it pushed the use of motor ambulances and the splendid manner in which the ambulance drivers performed their strenuous duties. The conditions of the campaign in France permitted the Red Cross Society to undertake the duties of providing hostels and means of transport for the friends and relations of sick and wounded men. In speaking of the hostels, a class of workers for the Red Cross who have, perhaps, received less credit than they deserve, ought to be mentioned. We refer to the devoted ladies who undertook the duties of housekeepers, parlour-maids, housemaids, cooks, and of wardmaids in voluntary hospitals, duties devoid of any of the excitement or interest of purely military work.

Scientific Work.

In one direction the Red Cross did particularly useful work that had not before come into its ambit: it devoted part of its resources to scientific purposes and to the provision of supplementary accommodation for treatment by electrical and orthopaedic methods such as have never been at the command of an army in the field before. Great help also was given to the establishment and equipment of units for the special treatment of injuries to the jaws at Boulogne and Étaples, which did much for the advance of surgical treatment, and at Étaples and Boulogne small units, officered by the Army Medical Service, were built and equipped in order to facilitate the special lines of treatment, such as the different methods of wound treatment, then being carried out.

Sir Anthony Bowlby points out that the work of the Red Cross was nowhere more appreciated than in the casualty clearing stations and the field ambulances, which, though well supplied by the army, derived much benefit from the supplementary stores of the Red Cross. During the whole war an apparently endless supply of dressings and bandages arrived in a continuous stream, and requisitions by individual surgeons for splints of some special variety were always complied with. At a later stage of the war shock was treated by the intravenous infusion of a solution of gum arabic, and this was prepared and supplied in special sterilized bottles through the Red Cross. Expansion of the surgical work at the front was assisted by the work of the Red Cross; for instance, it equipped operating theatres with linoleum for the floors, thus diminishing the risks of sepsis associated with bare boards, which are difficult in such circumstances to keep clean.

The total number of medical officers sent abroad by the Joint Committee was not more than a few hundreds, but the value of their work during the time of pressure was officially acknowledged. Eventually, at the suggestion of the military authorities, the majority of the Red Cross medical officers applied for and were granted temporary commissions in the R.A.M.C. In regard to the auxiliary home hospitals, however, medical attendance was provided locally throughout the war, and the report states that the public will probably never fully appreciate the amount of unostentatious voluntary work given by the medical profession in this way at a time when their ordinary duties had enormously increased, owing to the absence on active service of so many of their colleagues.

Finance and Organization.

At the time of the Armistice the total staff of the Red Cross at home and abroad was 9,234; in addition there were 126,000 V.A.D. members, of whom 90,000 were women. The entire cost of administration was less than 8½d. in the £ on the income, a fact largely due to economical management and the honorary character of the principal workers' services.

The accounts show that the public subscribed £16,500,000 in cash, and gave the equivalent of over £1,000,000 in stores. These gifts represent by far the largest voluntary effort ever made in this country. More than half the cash receipts were derived from the "Our Day" collections at home and in the Dominions. In addition, the farmers sent £1,000,000, the miners and mine owners £500,000, and church collections, sales at Christie's, including the famous pearl necklaces, and other successful appeals, together with individual subscriptions ranging from threepence to £25,000, made up the total.

The expenditure included over £5,000,000 for hospitals and stores, apart from local support to some 3,000 auxiliary home hospitals, and over £2,000,000 for the transport of 10,000,000 sick and wounded cases. Parcels for prisoners of war cost £5,000,000, and 3,000,000 books and thirty-six tons of weekly papers were given to the military hospitals. Grants to post-war schemes for after-care, etc., account for £2,700,000, and the surplus on June 30th, 1920, was £1,826,680.

The Joint War Committee.

The Red Cross effort was directed by the Joint War Committee, formed in October, 1914; it consisted of twenty-four members, twelve appointed by the British Red Cross Society, and twelve by the Order of St. John, and it was provided that the chairman and vice-chairman could not both be representatives of the same Corporation. The chairman of the Joint War Committee throughout its existence was the Hon. Sir Arthur Stanley, chairman of the Executive Committee of the British Red Cross Society, and the preparation of the general report, which is signed by Sir Arthur Stanley and Mr. Evelyn Cecil, M.P., is the work of many hands working for over two years, under the direction of Mr. J. Danvers Power, who has carried out in excellent fashion a complicated and laborious task.

This document performs the double office of a report to the subscribers of the funds and a record of Red Cross operations, which should provide a valuable reference work to all Red Cross organizers. It is well illustrated by many photographs and maps, including photographs of the interiors of bacteriological laboratory, dental surgery, and soup kitchen cars, of the Red Cross motor launches used in Mesopotamia, and of the uniforms worn by members of the different organizations. Interesting details are given of the methods by which the funds

were raised, while there are some pointed notes on the publications and entertainments during the war which were advertised as "in aid of the Red Cross." The notes on the delicate question of decorations and honours are likewise interesting, for the advice on which recommendations were based was obtained from county directors, whose standards varied and who supplied information widely differing in quality.

The contents of the report are not only of high importance to the medical profession, but as the work of the auxiliary home hospitals, convalescent homes, work parties and similar war organizations is adequately dealt with, in addition to the subjects of more strictly medical and technical interest, the volume must prove intensely interesting to all of the many thousands of people who throughout the empire took part in the wonderful work of the Red Cross.

England and Wales.

DR. DAVID HEPBURN, C.M.G., Professor of Anatomy and Dean of the Medical Faculty, University College, Cardiff, has been appointed Dean of the Faculty of Medicine in the University of Wales.

BIRMINGHAM SPECIAL SCHOOLS AFTER-CARE COMMITTEE.

The Special Schools After-care Committee of the City of Birmingham Education Committee has the duty of keeping a record of the subsequent history of former pupils of the special schools for the mentally defective. The total number of cases included in its records has increased from 2,282 in the year 1919 to 2,504 during the past year, males numbering 1,503 and females 1,001. These figures indicate very clearly the ratio of three boys to two girls which is frequently found in the various special schools for the mentally defective. Of the 2,504 cases in last year's records, 969 are doing remunerative work, 913 of these earning wages which average 30s. 10d. per week, while 56 are soldiers. The general depression in industrial and trade conditions has naturally had an effect upon the mentally defective cases in employment, and, while the number of men and youths under review this year has increased from 1,380 to 1,503, the number in employment has only risen from 630 to 655; the number of women and girls in employment has actually decreased from 320 to 314, although the total number of cases reported on has grown from 902 to 1,001. During the war, and for some time afterwards, no difficulty was experienced in procuring situations for such mentally defective persons as were capable of employment, but under the present conditions of industry considerable difficulty arises. The earnings of those, however, who have remained in employment show the general upward tendency which wages had during 1920, and three men are each reported as able to earn £5 per week, while two others in business on their own account are reported to be making comfortable livings. The percentage of cases in institutions again decreased last year, and the Committee says it finds that institutional accommodation for the mentally defective is still deplorably inadequate throughout the country as a whole.

ANTITUBERCULOSIS WORK IN BRISTOL.

Sir William Treloar, who founded the hospital for surgical tuberculosis at Alton in Hampshire, has accepted the invitation of the Bristol Health Committee to open Frenchay Park Sanatorium on October 5th. Bristol is attempting something akin to the Alton work at Frenchay, where children in need of surgical treatment for tuberculosis will be received.

The Bristol Health Committee will soon have ready temporary accommodation for 52 more cases of consumption at the City Fever Hospital and Sanatorium at Ham Green, but a second assistant medical officer will be necessary, and the committee proposed that one be appointed at a salary of £300, with board and house room. Ham Green, when these beds are ready, will have 136 sanatorium beds and 200 fever beds.

Scotland.

TUBERCULOSIS AND EMIGRATION TO AUSTRALIA.

THE Scottish Board of Health has been in communication with the High Commissioner for the Commonwealth of Australia with reference to the conditions under which emigrants from the United Kingdom who have suffered from tuberculosis will be admitted into the Commonwealth, and has circularized local authorities in Scotland with reference to the reply of the Commonwealth authorities. The Board recommends that local authorities should allow the co-operation of their medical officers in the manner indicated below. While the Australian Government desires to exclude immigrants who are suffering from active tuberculosis, it is willing, subject to certain conditions, to admit persons in whom the disease has been arrested, if they have received a period of treatment in a sanatorium and have thus been educated as to the protection necessary to preserve their own health and to protect that of others, and if there is an unequivocal history of freedom from symptoms of the disease during the immediately preceding twelve months. The conditions of admission include certification by a medical man who is an expert in tuberculosis, and it was suggested to the Board of Health that the services of tuberculosis officers employed by the local authorities should be made available for the purpose. The procedure suggested is that the medical referees responsible for the examination of all intending emigrants to Australia shall report to the chief medical officer for the Commonwealth in London all cases in which traces of tuberculosis are discovered or suspected; the chief medical officer will refer such cases to the medical officer of health of the district in which the person resides, with a request that the case be examined and a report furnished by the tuberculosis officer; the Commonwealth Government will pay to the local authority a fee of one guinea in respect of every such examination. Those persons in respect of whom a satisfactory report is furnished by a tuberculosis officer will be admitted into Australia subject to certain conditions: that the formal consent of the Commonwealth Minister for Home and Territories is obtained; that the disease does not become active again during the voyage; that the intending immigrants pass the ordinary examination by the quarantine medical officer at the port of disembarkation; and that they report themselves for examination at the end of each twelve months during the first three years in Australia; in the event of the disease having become active again during that period they will be liable to deportation at their own expense.

METEOROLOGY AND MALARIA IN SCOTLAND.

At the recent meeting of the Royal Meteorological Society held in the Natural Philosophy Department of Edinburgh University, under the presidency of Mr. R. H. Hooker, M.A., an interesting address on "Meteorology in medicine, with special reference to the occurrence of malaria in Scotland," was given by Dr. Angus Macdonald. Developing a theme on which he has previously written, he said that the fundamental meteorological factor influencing biological reactions was temperature. This influence was universal in its application to organic life and had a specific implication in the production of disease. As an illustration of the effect of temperature conditions upon the prevalence of disease Dr. Macdonald instanced the history of the occurrence of malaria in Scotland. The evidence of medical documents of the early part of the eighteenth century suggested that malaria was at one time indigenous in Scotland. Thus, making due allowance for faulty diagnosis of "ague," the records pointed to the presence of malaria in that country two hundred years ago. But the evidence was very shaky in support of the view that malaria had lingered on from year to year. All the recorded outbreaks coincided with an abnormally high temperature during several months in consecutive years. Dr. Macdonald concluded that malaria could only become endemic again in Scotland if two rare conditions were present simultaneously—the importation of the disease in large volume from abroad and a prolonged mean temperature of 60° F.

India.

THE PUBLIC HEALTH COMMISSIONER AT SIMLA.

In future the Sanitary Commissioner with the Government of India will be known as the Public Health Commissioner. In the provinces the departments hitherto presided over by Sanitary Commissioners will be known as Departments of Public Health. The Sanitary Commissioners with the various Governments will in future be known as Directors of Public Health. The Deputy Sanitary Commissioner with the Government of India will be known as the Director of Medical Research.

THE COUNTESS OF DUFFERIN'S FUND.

The thirty-sixth annual report of the National Association for Supplying Female Medical Aid to the Women of India deals with the year 1920; it gives evidence of continued development of the praiseworthy efforts initiated by the Countess of Dufferin to promote the physical welfare of the women and children of India. Successive vicereines, conspicuously Ladies Elgin, Hardinge and Chelmsford, aided and encouraged by Indian governments, officials, nobles and gentlemen, have carried on the good work, and the association has now attained the position of a national institution, the objects of the fund, all tending towards the realization of a worthy ideal, are manifold. In addition to affording medical aid to women through the agency of medically qualified women in hospitals and homes, extensive arrangements have been made for training midwives and nurses for service in hospitals and for private practice. Scholarships are also granted by the imperial and provincial governments, by the central council, by the United Kingdom branch, by Indian branches, and by private wellwishers, to enable selected women to study at the Calcutta Medical College, the Grant Medical College, Bombay, the Lady Hardinge College, Delhi, and the Campbell Medical School, Calcutta; further, officers of the association are helped to take advantage of arrangements for post-graduate instruction. The report shows that there are now in India 144 women's hospitals staffed entirely by women, including 30 which have been opened in native states, and several affiliated mission hospitals. The detailed reports of these hospitals indicate good and growing work and increasing popularity and usefulness. Women resort to them as indoor and outdoor patients, not only for common ailments, but also for special feminine complaints and for help in labour, normal and abnormal. It has been recognized that venereal diseases are in India a serious cause of suffering among women, and arrangements have been made for imparting to members of the women's medical service instruction regarding the nature, recognition, prevention, and treatment of these maladies. Two courses, attended by twenty-one women, were conducted at Deolali by Lieut.-Colonel Frost, R.A.M.C. The subject of hygiene has also come into prominence. The Maternal and Child Welfare Exhibition, which was held at Delhi, and of which a brief description was given in the BRITISH MEDICAL JOURNAL (May 1st, 1920, p. 618), stimulated interest in domestic and village sanitation, and gave origin to Lady Hardinge's All India League for Maternity and Child Welfare. Special sanitary instruction is given in the Delhi Health Training School. The finances of the association are on a sound basis, and it has been found possible to increase the pay of its officers. Their status has also been raised. Altogether the undertakings of the association fulfil amply and increasingly a most laudable philanthropic purpose among a class of Indian subjects difficult of access; but they also accomplish a political benefit. Women in India govern their homes and children, and the genuine concern and ardent service for their welfare manifested and exercised by the association cannot but establish a bond of mutual regard between rulers and ruled.

SUBASSISTANT SURGEONS.

From a report in the *Pioneer* of a conference in Calcutta of the Bengal Branches of the All-India Subassistant Surgeons' Association, it appears that these officers are very dissatisfied with their pay and prospects. Objection is taken also to the new system of requiring a bond to be executed before a candidate can enter the Government service. The scale of pay, always low, is now, in view of the economic changes, asserted to be unworthy of the acceptance of any self-respecting body of men. It is urged that in considering the matter the Government should give attention to the needs of the military assistant surgeons as well as to the subassistant surgeons.

MEDICO-LEGAL WORK IN THE PUNJAB.

The annual report of the chemical examiner to the Government of the Punjab for 1920 shows that the number of detected cases of poisoning was smaller than in the previous year; they numbered 279, and the chief agent employed was opium; next in frequency came arsenic. There is evidence that the chloral habit is replacing or supplementing the cocaine habit. A number of blood-stained articles were referred to the Imperial serologist, Calcutta, for examination. The chemical examiner also made examinations of a number of alleged cases of poisoning in cattle; the poison most often used was arsenic.

Correspondence.

DIAGNOSIS AND TREATMENT.

SIR,—In the review of Sir Thomas Horder's *Medical Notes*, in the JOURNAL of September 10th, the following words of the author are quoted with evident approval: "It has been said of medicine that the most important thing is diagnosis, the next most important thing is diagnosis, and the third most important thing is diagnosis."

That, theoretically considered, this may be correct I am not disposed to dispute, but it appears to me that insistence on this point of view, so general on the medical side of teaching hospitals, is answerable for the somewhat unsatisfactory state of medical practice, associated in the minds of the public with a not altogether unhealthy scepticism of the benefits resulting from consulting the medical profession—a scepticism shown in a readiness to seek the services of unqualified practitioners.

In my humble opinion what the community needs are increased facilities for treatment. Diagnosis must not be neglected, and when Sir James Mackenzie's school has taught us to evaluate symptoms we may indulge in prognosis; but treatment must necessarily in many cases precede diagnosis, which frequently can, in our present state of knowledge, be only tentative. Treatment may, by allaying complicating symptoms, enable us ultimately to arrive at a correct diagnosis. Over-insistence on the importance of diagnosis suggests the idea that all treatment must be specific, whereas the truth probably is that even Nature, whom we can only assist, has a general plan of reaction to groups of external agents, and supplements these general reactions with specific responses.

Greater attention to and further facilities for general treatment, including "the therapeutical gymnastics of the Hippocratean schools," is a necessity of the times; too long have we lain under the shadow of such physicians as Skoda of Vienna, who "openly held that their work was diagnosis only, and treatment practically impossible."—I am, etc.,

London, W., Sept. 12th. HAROLD H. SANGUINETTI.

TREATMENT OF ACUTE TOXAEMIA.

SIR,—I have made trial, in some 70 cases of epidemic influenza, influenzal pneumonia, and ordinary pneumonia, of Sir Archdall Reid's powder of aspirin, phenacetin, and Dover's powder (BRITISH MEDICAL JOURNAL, June 4th, 1921, p. 835). In mild and moderate cases it certainly relieved the dominant symptoms, but I had in 28 cases to supplement it, or, rather, replace it. In these cases, while most of the discomfort and pain vanished, the temperature failed to come down. I used then a somewhat similar powder, which I have employed with every satisfaction for twenty-five years in all sorts of febrile and toxaemic states. It produces more profuse sweating than the aspirin combination, and seems more effective in sweeping out toxins. It consists of 5 grains each of phenazone, Dover's powder, and potassium bicarbonate. I have had the greatest satisfaction with this powder in malaria, especially attended by vomiting, but in this disease phenazone should be replaced by phenacetin. For some reason or other this is the best weapon with which to attack acute malaria; quinine can be exhibited

a little later. If a trial is made of these combinations on a proper basis and scale, I should very much like to hear what others can effect with my powder also.—I am, etc.,

JOHN A. GRAHAM, M.B.

Bethulie, O.F.S., South Africa, Aug. 27th.

HAEMORRHAGE FROM THE TONSIL.

SIR,—I have been greatly interested in this discussion, having anaesthetized for many thousands of tonsillectomies. I have observed that haemorrhage of a severe character is far more often associated with the use of the guillotine, and that it is most rare when the operation is carried out by dissection, owing, I suppose, to the tearing and twisting of the vessels with consequent clotting. Although ether is undoubtedly safe, there is, in spite of the great use of atropine, more haemorrhage than with chloroform. Some surgeons prefer the head low, and in this position, although the blood conveniently pools in the post-nasal space, there is more congestion (and bleeding) than when the head is level with the trunk. With a skilled assistant to swab, it is, as a rule, easy to keep pace with the surgeon. In my experience, most cases of severe haemorrhage have been in men with high blood pressure and fibrous tonsils who have been great smokers—notably soldiers during the war. Stitching the pillars has almost invariably stopped the haemorrhage, especially with a small plug of gauze placed in the tonsil bed.—I am, etc.,

GRAHAM SCOTT,
Late Anaesthetist, 4th London General, Great Ormond Street Children's, and Dreadnought and Central London Throat Hospitals.

Herne Hill, Sept. 17th.

CAPILLARY PRESSURE.

SIR,—Dr. Hill (September 10th, p. 417) tells us that he has "never failed to realize the obvious fact that there must be a greater pressure inside than outside the capillaries in order to maintain patency." My first letter (June 11th, p. 873) called attention to Dr. Hill's having taken no account of this obvious fact in his lecture, paragraph 2, last sentence. For the sake of brevity I did not call attention to his ignoring this obvious fact in paragraph 5 of his lecture, where he spoke of the pressure of the aqueous balancing the capillary pressure in the iris. And when Dr. McQueen (June 25th, p. 955) imagined he had proved that the pressure in capillaries was less than the pressure outside them by a manometric pressure of 10 mm. Hg, there was no protest from Dr. Hill that such a result must be wrong as being contrary to the same obvious fact.

However, Dr. Hill and I are now agreed that there must be greater pressure inside than outside the capillaries. But Dr. Hill says he maintains that the difference between the two pressures is very small, and in support of this contention he recapitulates some of the matter which appeared in his lecture, partly irrelevant, and the rest inconclusive, as I shall now show.

1. The fact that the pressure in the cerebro-spinal fluid is found to be about the same as that in the torcular Herophili gives no indication of the amount by which the pressure in the capillaries of the brain exceeds either of them.

2. The fact that the pressure of the brain against the skull is circulatory in origin, and is increased when the pressure in the cerebral blood vessels increases, is no proof that these two pressures are equal, or nearly so. If Dr. Hill will attach a small toy balloon to the tube through which he inflates his Roy and Graham Brown apparatus, so that the toy balloon lies inside the chamber, and connect the said tube with a separate manometer from that which records the pressure in the chamber outside the balloon, then close the chamber by tying on its covering membrane, and inflate the balloon, he will find that when the wall of the balloon is taut the pressure in the balloon is greater than that in the chamber outside it, though the latter is derived from it and increases with it. The smaller the balloon in comparison with the chamber, the more remarkable will the difference of pressure be.

3. The argument from the experiment of the cut finger inserted into a tube connected with a manometer is misleading. Every surgeon knows that when blood vessels are severed they both retract and contract. Owing to the contraction there is greater resistance to the flow of blood through them, so that the blood emerging is probably at a lower pressure than there was at the same point before severance. Owing to free anastomosis, when the flow of blood in one direction is impeded it can get away by other channels, thus avoiding much piling up of pressure.

4. I have already (June 11th, p. 873) explained the fallacies of Dr. Hill's method of "measuring" the capillary blood pressure with the Roy and Graham Brown apparatus.

5. Dr. Hill says:

> "The Roy and Graham Brown method has shown me that when the heart is stopped it takes the least pressure (1 to 2 mm. Hg) to drive the corpuscles along the capillary vessels as quickly as they move in the natural conditions of the circulation."

The corresponding statement in Dr. Hill's lecture was:

> "When the web of the excised leg is compressed in the Roy and Brown apparatus, a momentary pressure of 2 mm. Hg will cause the corpuscles to rush along the capillaries and venules no less rapidly than in the normal flow."

Before giving an opinion on the argument from this observation I should like to know:

(*a*) What was the pressure in the Roy and Brown chamber to which the additional pressure of 2 mm. Hg was added?

(*b*) Was the additional pressure of 2 mm. Hg added by pumping more air into the chamber or by compressing the dome with the glass?

(*c*) Is the flow seen at the centre of the flattened portion of the dome, or only near the junction of the flattened and curved portions?

(*d*) It might also be of importance to know the magnifying power of the microscope used.

As I indicated in my first letter (June 11th, p. 873), I made no reference to several of the above points, because reference to them all would have made my letter too long. My object in writing was simply to point out that Dr. Hill was giving us as proofs of his statements things that were not proofs at all.

Another instance of this which I have not previously discussed is to be found in paragraph 5 of his lecture, where he said:

> "That the pressure of the aqueous balances the capillary pressure in the iris is shown by the fact that on letting this fluid escape the iris bulges forward and may touch the cornea, and on compressing the abdomen the vessels burst and the blood comes into the anterior chamber. No such bulging or haemorrhage can be brought about by squeezing the belly when the eye is intact."

The irrelevancy of this argument is transparent. The pressure in the capillaries of the iris presses the posterior part of their walls backwards as much as it presses the anterior part forwards, and has nothing to do with the movement of the iris forward when the aqueous is let out. That the walls of the capillaries of the iris can stand the additional strain put upon them by compression of the abdomen when they have outside them the support of the aqueous in an intact eye, and cannot do so when deprived of that support, is no proof that the pressure in them is the same as that of the aqueous.

But Dr. Hill has me on the horns of a dilemma when he says (September 10th, p. 417):

> "There is, of course, a difference of tension between the inner and outer surface of a capillary, but this is so small as to be negligible. Let Dr. Gillespie get out of his armchair and proceed by experiment to prove the opposite which he so dogmatically asserts."

If I take the first portion of this statement as it stands, and point out that it is nonsense, and that I have not asserted the contrary, I may be told that I am quibbling, as Dr. Hill meant something else which ought to have been plain to me; whereas if I attempt to amend it I may be accused of ascribing to Dr. Hill a statement he has never made. I had therefore better leave it. Dr. Hill's amendment of Dr. McQueen's nonsensical sentence fails to make a sensible statement out of it.—I am, etc.,

Knock, Belfast, Sept. 12th. JOHN R. GILLESPIE.

SIR,—Those of your readers who are acquainted with Professor Leonard Hill's work and have at the same time followed this correspondence are cognizant of the fact—to give only one, though glaring, example of Dr. Gillespie's misrepresentations—that Professor Hill has never taken "the pressure of the brain against the skull as a measure of the pressure in the arterioles," yet Dr. Gillespie has stated this more than once. I submit, therefore, that the charge of misrepresentation is more than justified.

Dr. Gillespie assumes that in the eye the pressure in Schlemm's canal is less than that in the anterior chamber, which if it were only a matter of faith and belief would not be worth controverting; but when he dogmatically asserts, in proof of his assumption, that the only veins into which there is a flow from Schlemm's canal are the anterior ciliary veins which lie *outside* the sclera, I beg again to disagree with him. The anterior ciliary veins arise from the ciliary body and send afferent branches to Schlemm's canal *before* they have pierced the sclera, as well as in their passage through the sclera. Schlemm's canal is a venous sinus, and its anatomical connexions are such as absolutely contradict Dr. Gillespie's statement that there are "veins and veins in the eye," veins with comparatively high pressure to maintain their patency against intra-ocular pressure, and veins, such as Schlemm's canal, with a low pressure so that aqueous can filter out.

In conclusion, I submit that I am more qualified to express an opinion on this point than Dr. Gillespie is, as I happen to have worked out the venous connexions of Schlemm's canal in the mammalia from marsupials to man. All my findings in the eye are in absolute agreement with what Professor Hill has himself described as existing in the brain, though not with what Dr. Gillespie has attributed to him; hence my intrusion into this controversy.—I am, etc.,

Nottingham, Sept. 17th. THOMSON HENDERSON.

TREATMENT OF CONGENITAL CLEFT PALATE: *A Correction.*

SIR,—In the BRITISH MEDICAL JOURNAL of March 5th, 1921, an article appeared entitled "A new principle in the surgical treatment of 'congenital cleft palate' and its mechanical counterpart," written by myself and Mr. Kelsey Fry.

A statement in the article gave the impression that Dr. Truman Brophy of Chicago was not entirely satisfied with the results of the cleft palate operations according to his method, and that, when I had the pleasure of meeting him in America, he had advised me to use a "tube pedicle" to fill up the palate.

This is entirely contrary to his views, as he and a very large school of American surgeons are well satisfied with their palate results done according to the Brophy method. Dr. Brophy merely suggested that the tube pedicle might be of use in those cases in which there had been great loss of tissue, and in which no repair by approximation of the maxillae could be attempted.

I much regret that Dr. Brophy and his many world-wide adherents should have been annoyed by this unintentional misleading statement.—I am, etc.,

London, Sept. 20th. H. D. GILLIES.

MENINGEAL ANTHRAX.

SIR,—I was interested in the note in the BRITISH MEDICAL JOURNAL of September 17th, from Dr. Pasha of Constantinople, describing a case of anthrax in the nasal cavity. The following case is, I think, even more extraordinary.

A patient was admitted to hospital at Basra in June, 1919, with a temperature of 104°, and regarded as a severe case of malaria. Repeated blood examinations for malarial infection were negative, but there was a daily rise of temperature with attendant rigors. Cerebral symptoms predominated, slight convulsions, occasional coma, and before death unequal pupils and slight incontinence. The patient died on the third day after admission. In spite of the repeated negative blood examinations the case was still regarded by all who saw the patient as one of malaria.

Post mortem there was nothing to note externally. Only the brain and spleen were examined. On opening the skull I found an intense engorgement of the superficial veins and sinuses. The cerebro-spinal fluid was not under pressure. The dura mater was a little thickened. The cortical surface of the brain presented a remarkable appearance. There was a wide extravasation of blood over the whole surface, practically a complete membrane of blood clot one-eighth of an inch in thickness lying between the dura and pia mater. There was a little blood-stained fluid in the ventricles, but the foramina were patent. On section nothing abnormal was found, the brain tissue being intact.

The spleen was normal in size, weight, colour and consistency. Cultures and direct films were made from the spleen and from the ventricles and cortical surface of the brain. After twenty-four hours a pure culture of *B. anthracis* was obtained from the brain inoculations. No growth was obtained from the spleen pulp. Confirmation of the nature of the infection was obtained from the Central Laboratory. There was no apparent primary lesion, as one might have expected, in the nasal mucous membrane. I learned that the patient had been working at the riverside docks where there was an occasional case of malignant pustule.—I am, etc.,

G. F. MITCHELL, M.D.,
Late Pathologist, 40th British General Hospital, Basra.

London, Sept. 16th.

A SIGN IN ENCEPHALITIS LETHARGICA.

SIR,—It has been my lot to see a number of cases of encephalitis lethargica during the past eighteen months, and in addition a number of suspected cases which were afterwards diagnosed otherwise. I have taken a particular interest in the ocular signs as observed by myself and in those recorded by others in literature on the disease.

My cases have all been of the severe type, usually admitted to hospital and attended by the usual mortality; in these cases I have found that a curious condition of the pupil exists, and that by manipulation of light falling on the pupil one is able to produce eccentric pupils in the eyes.

The eyelids of one eye are kept open with the finger and thumb of the left hand, and a shadow cast by the index finger of the right hand on a portion of the iris; this part of the iris contracts sluggishly, almost reminding one of a viscous liquid, with the result that one gets an irregular pupil, due to the different widths of the iris, and by varying the length of time the shadow falls on a part of the iris curious results can be induced, such as a pear-shaped pupil. The action of the iris is easily perceptible, the pupil taking about fifteen seconds to regain its regular shape, and is quite easily elicited with the aid of light from a near-by window. Moving the shadow about has the effect of making the iris appear to be making an effort to follow the shadow, but it moves too slowly, resulting in a very uneven pupil. The result can be obtained in either eye independently.

I have now obtained the sign in several cases where the disease has been definitely diagnosed and have not elicited it in epidemic cerebro-spinal meningitis. I record my observations in the hope that others who have the opportunity will test the sign and its value as a point in the diagnosis or differential diagnosis of encephalitis lethargica. The disappearance of the sign appears to be of favourable import, and the sign appears most easily elicited during the drowsy stage.—I am, etc.,

EUSTACE THORP, O.B.E., L.R.C.S., D.P.H.,
Assistant M.O.H. Sunderland; M.O. Borough Infectious Diseases Hospital.

Sunderland, Sept. 16th.

HERPES AND VARICELLA.

SIR,—In regard to the various evidence for (and against) a connexion between herpes and varicella, it is interesting to point out that the statistics of disease on Christmas Island, Straits Settlements, for a period of twenty years or more show that while herpes zoster has been comparatively common varicella has been unknown. The population of the island has varied between 500 and 1,500, and includes Europeans, Indians, Malays, and Chinese, both sexes, adults and children, adult males preponderating. Christmas Island lies more or less off the beaten track. It may be presumed that the micro-organism of varicella differs in degree, at least from that of herpes, and that the former has not yet been introduced, although it occurs with ordinary frequency on the mainland. It may be added that the island had never been inhabited by man prior to annexation in 1888; and the company which leases it commenced operations twenty-five years ago.—I am, etc.,

Christmas Island, Aug. 14th. S. J. CANTOR, M.B., Ch.B.

THE *Folha Medica* announces the organization of the Sociedade de Obstetricia e Gynecologia do Brazil, with Rio de Janeiro as its headquarters, and the *Revista de Gynecologia*, now in its fifteenth year, as its official organ. Professor F. Magalhaes has been elected president.

The Services.

R.A.M.C. ROLL OF HONOUR.

PART 79 of the official list of *Soldiers Died in the Great War, 1914–19*, contains the full names and regimental numbers of the 5,537 non-commissioned officers and privates of the Royal Army Medical Corps who lost their lives. Each entry gives also the places of birth and enlistment, and an indication of the mode and date of death, and the countries in which the soldier served during the war. These rolls have been compiled from information furnished to Officers-in-Charge of Records through the Official Casualty Lists. The price of Part 79 is 5s.

The list of officers of the R.A.M.C. was included in the volume published early this year which contained the names of officers in all branches of the army who died during the war. The total number of names of officers of the R.A.M.C. in the Roll of Honour is 709. The Officers' Roll, comprising over 40,000 names in all, may be purchased from H.M. Stationery Office through any bookseller, price 7s. 6d.

HONOURS.

K.B.E.

IN the list of appointments to the Military Division of the Order of the British Empire for valuable services rendered in connexion with military operations in Mesopotamia published in our last issue (p. 466) the name of Major-General OLIVER R. A. JULIAN, C.B., C.M.G., C.B.E., who has been created a Knight Commander of the Order, was accidentally omitted. General Julian was also included in the list of officers mentioned by the Commander-in-Chief, Mesopotamia Expeditionary Force, for distinguished and gallant service and devotion to duty and recommended as deserving of special recognition.

The President of the Czecho-Slovak Republic has conferred the Croix de Guerre upon Surgeon Commander Charles J. E. Cock, R.N., in recognition of services rendered during the war.

Universities and Colleges.

UNIVERSITY OF LONDON.

KING'S COLLEGE.

A SPECIAL course of eight lectures on the histology of the nervous system will be given during the Michaelmas term by Dr. C. Da Fano, in the Physiology Lecture Theatre of King's College (University of London), Strand, W.C. The lectures will be accompanied by demonstrations of specimens, and will be held on Wednesdays, at 4 30 p.m., beginning Wednesday, October 12th. The course is free to all students of London colleges and to medical men and others on presentation of their visiting cards. The course has been recognized by the University of London as one of the special courses for the B.Sc. Honours Degree.

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD.

THE following awards of medical entrance scholarships and exhibitions have been made on the results of the examination held in June, 1921:

University College.—Bucknill Scholarship: A. S. Wesson. Additional Bucknill Scholarship: M. Barer. Medical Exhibition: Violet H. Comber.

Westminster Hospital Medical School.—Natural Science Scholarship: G. A. H. Norman.

London (Royal Free Hospital) School of Medicine for Women.—St. Dunstan's Medical Exhibition: Muriel F. Prout. Mrs. George M. Smith Scholarship: Winifred A. Ladds. Isabel Thorne Scholarship: Evelyn M. Pakeman. Mabel Sharman Crawford Scholarship: Grace Nicolle.

London Hospital Medical College.—Price Scholarship in Science: F. W. Ta'Bois. Science Scholarship: H. Evans.

Medical News.

THE opening meeting of the fortieth session of the West London Medico-Chirurgical Society will take place at the West London Hospital on Friday, October 7th, at 8.30 p.m., when Sir G. Lenthal Cheatle, K.C.B., C.V.O., F.R.C.S., will give his presidential address, "A study of breast cancer in relation to the cancer problem."

THE St. Thomas's Hospital old students' dinner will take place at the Wharncliffe Rooms, Hotel Great Central, Marylebone Road, N.W., on Friday, October 28th, at 7 for 7.30 p.m. The chair will be taken by Dr. H. W. G. Mackenzie. The price of the dinner is 17s. 6d., to be paid at the Wharncliffe Rooms.

A COURSE of lectures and discussions on problems of public health in relation to industrial hygiene will be held at the Royal Institute of Public Health (37, Russell Square, London, W.C.1), on Wednesdays, from October 19th to December 7th, at 4 p.m. The lecturers include Sir Thomas Oliver, Professor Louise McIlroy, Professor S. Lyle Cummins, Professor Edgar L. Collis, Sir Kenneth Goadby, and Dr. H. M. Vernon. The lectures are free. Further particulars may be obtained from the secretary.

THE Past and Present Students' Dinner of St. Mary's Hospital will be held at the Connaught Rooms, Great Queen Street, at 7 for 7.30 p.m. on Monday, October 3rd. Dr. E. G. Graham Little, Physician to the Skin Department, will preside. Applications for tickets (price 12s. 6d. exclusive of wine) should be addressed to the honorary secretary, Dr. A. Hope Gosse, 15, Queen Anne Street, W.1.

THE opening of the Winter Session of the London (Royal Free Hospital) School of Medicine for Women, University of London, will be held at Hunter Street, Brunswick Square, W.C.1, on Monday, October 3rd, at 3 p.m. The introductory address will be given by Dr. Louisa Martindale on "The woman doctor and her future."

THE annual meeting of the Medical Sickness Annuity and Life Assurance Society Limited will be held at the offices of the Society, Lincoln House, 300, High Holborn, W.C.1, on Monday, September 26th, at 3.30 p.m., when the first report of the society since its conversion into a mutual company will be presented.

A SPECIAL course of systematic lectures and clinical demonstrations will be given at the National Hospital for Diseases of the Heart, Westmoreland Street, W.1, on Mondays, from October 10th to December 12th. Further particulars can be obtained on application to the secretary of the hospital.

THE Sultan of Egypt has conferred the Order of the Nile (second class) upon Mr. Owen Richards, C.M.G., D.S.O., Director of the School of Medicine, Cairo, in recognition of valuable services rendered.

DR. J. A. PESNO Y BASTIONY, Director of the *Revista de Medicina y Cirugia* of Havana, has been commissioned by the Government of Cuba to visit the medical centres of Europe to study recent progress in methods of teaching anatomy and operative surgery.

DR. N. H. BOLTON, medical officer of the Shanghai-Nanking Railway, has been decorated by the President of the Republic of China with the Order of the Excellent Crop (sixth class) in recognition of valuable services rendered.

PROFESSOR O. NÄGELI has succeeded Professor Eichhorst in the chair of clinical medicine at Zürich.

ACCORDING to statements published in Lima, Peru, attributed to Dr. Henry Hanson, who is in charge of the sanitation campaign directed against yellow fever by the Peruvian Government and the Rockefeller Foundation, nearly 1,000 deaths from yellow fever have occurred during the past nine months in the department of Lambayeque and La Libertad. The Rockefeller Foundation contributed 20,000 dollars to fight the epidemic, which is now reported to be decreasing.

DR. F. D. BENNETT has had conferred upon him by the President of the French Republic the distinction of Chevalier of the Legion of Honour in recognition of his services to the French Red Cross.

ACCORDING to the *Journal of the American Medical Association*, the Rockefeller Foundation has contributed more than 3,000,000 dols. for new buildings and endowments for the medical school of the University of Belgium. The laboratories and classrooms of the medical school are to be rebuilt and redeveloped close to the municipal hospital of St. Pierre. This hospital is also to be rebuilt and reorganized, and will contain 350 beds, as well as a well equipped out-patient department, laboratories, and accommodation for teaching and research in connexion with the University of Brussels. In addition, as already announced, a nurses' training school is to be established, as part of the general plan, in memory of Edith Cavell and Madame Depage.

DR. ETTORE MARCHIAVA, well known for his researches on malaria, has been nominated an Emeritus Professor at Rome.

THE American Public Health Association announces that its semi-centennial celebrations will be held in New York City from November 8th to 18th. Among the features of the celebrations will be the scientific sessions to be held from November 14th to 18th, including the laboratory, vital statistics, public health administration, sanitary engineering, industrial hygiene, and food and drugs sections. From November 8th, during the week preceding the convention proper, there will be organized demonstrations of the different forms of public health activity in New York. A banquet will take place at which Dr. Stephen Smith, the founder and first president of the Association, who is now in his 99th year, will be entertained. A historical jubilee volume, entitled *Fifty Years of Public Health*, will also be published about October 1st. Further particulars may be had from the secretary at 370, Seventh Avenue, New York City, U.S.A.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Mediscra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin:* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

PERSISTENT HEART BEAT AFTER CESSATION OF BREATHING.

DR. A. H. RABAGLIATI (Durban) writes: In answer to Dr. D. S. Clarke's query (July 2nd, p. 30) as to continuation of heart beat after death, the following personal experience may be interesting:

In 1909, in the Ingham district, North Queensland, Australia, I was called in to see a woman, aged about 40, who was dying from sprue. She was pregnant nearly full time. Death took place next day. I was present when she died, but her pulse continued beating. Except for the heart beat all other signs of death were usual, and there was no doubt about the actual moment that death took place. Twelve hours later her pulse was still plainly perceptible and a faint heart movement could be heard with stethoscope but not felt. A colleague kindly came in twelve hours after her death at my request to verify the phenomena. He also could easily feel the pulse and hear the heart. The pulse continued for twenty-one hours after death. I have no explanation to offer; my colleague explained it by saying the heart was continuing to beat just as a frog's heart does even after removal from the body. The patient had been ill for many weeks, I believe months, with sprue, which was common there. She was intensely anaemic, which made the continuance of the heart beat to me the more extraordinary. I only saw her for the first time the day before her death. I have never seen the same condition before or since.

INCOME TAX.

"X. Y. Z." has received a cheque in payment of fees to which an "addition" is made as a present. Is the addition liable to income tax?

*** The principle laid down in connexion with gifts—Easter offerings, in the case of Cooper *v.* Blakiston—is that they are liable to taxation if they are given in regard of services rendered to the giver rather than of the private circumstances of the recipient and the personal relations subsisting between the two. Perhaps "X. Y. Z." can apply this principle to his own case; the fact that the "addition" was made to the payment of the fees charged is, of course, one point in favour of regarding it as a gift.

"R. C." has omitted to send his name and address.

LETTERS, NOTES, ETC.

"SURGICAL REMOVAL OF THE TONSILS": A CORRECTION.

FIGURE 2, on page 438, and Figure 3, on page 439, illustrating Dr. Irwin Moore's paper on surgical removal of the tonsils, which appeared in last week's issue, were inadvertently printed upside down.

DRUGS FOR STARVING RUSSIA.

THE Friends' Relief Committee, which is doing good work in the campaign against famine in Russia, has received an appeal from its unit in Russia for drugs to combat disease in the overcrowded famine area. We are asked to state that atropine sulphate, quinine hydrochloride, caffeine, iodine, calcium iodate, potassium iodide, pilocarpine hydrochloride, and ipecacuanha root are urgently required. Gifts in money or in kind should be sent to the Honorary Secretary, Friends' Relief Committee, 27, Chancery Lane, W.C.2.

THE SUPPLY OF DIPHTHERIA ANTITOXIN.

"B. L. S." writes: It seems useless for teachers and authorities like Dr. Thomson to instil into students the need for immediate use of antitoxin on the diagnosis or justified suspicion of a case of diphtheria, if we as practitioners are to be hindered from carrying out such treatment by laymen on urban district councils. I am practising in a home county town not thirty-five miles from London, and some time ago had a suspicious case of diphtheria in a house in the poor industrial part of the town. I gave antitoxin, which the M.O.H. authorized me to purchase, and sent the bill into the council, who after discussion refused to pay, and informed me that I must collect the money from the patient. The same week they refused to pay for antitoxin given by another practitioner in a similar case. I maintain that I give antitoxin for two reasons—(1) the benefit of the community, and (2) the benefit of the patient. If the local authority will not provide antitoxin, if I fail to collect the cost from the patient, I pay out of my own pocket for treatment benefiting the community. If this state of affairs is allowed to exist my dosage will have to depend on the length of the patient's purse or my own at the time. The suitability of patients for the free supply of antitoxin must be left to us as practitioners who enter the homes and know the circumstances, and not to gentlemen who discuss local affairs on two or three evenings a month. I have placed the case before the Ministry of Health, and the Ministry wrote to the council; on the receipt of their reply "that the case was one in which the council did not consider they should be called upon to provide antitoxin," the Ministry informed me that it could do no more. I have carried on practices in various parts of the country, and this, I am glad to say, is the first town where I have ever had any trouble in regard to antitoxin. It is almost useless for progressive boroughs like Wimbledon to take proper steps in the prevention of diphtheria if this state of affairs exists in country districts from where, perhaps, their milk supply is drawn.

ADJUNCTS FOR MOTORISTS.

MANY minor accessories useful to motorists are supplied by Messrs. Brown Bros. of Great Eastern Street, E.C.2. Amongst these are Peldo, and Jackson's Motor Car Polish. Peldo is a cream supplied in collapsible tubes. An inch or two of the cream is squeezed out and rubbed well into the hands before undertaking any adjustments of the car of a dirty or greasy nature. The solvent quickly evaporates so that the presence of the cream is not seen and is hardly felt. When the work is finished washing with ordinary soap and water removes practically all traces of dirt, and at the same time the skin is not roughened or hardened. Jackson's Motor Car Polish is useful for polishing and preserving the paint and the leather upholstery of cars. The post-war painting of mass production cars is often decidedly sketchy; rubbing and polishing with this polish will render the paintwork of such a car more presentable, when the bloom of its youth has gone. Applied to leather it makes the surface clean and soft, and is stated to preserve the condition of the leather.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.

"AN OLD MEMBER" writes: "The papers just received with the announcement of the first annual general meeting of the Medical Sickness and Accident Society since it was transposed into a mutual company may or may not strike the attention of the subscribers. Having perused them myself, I think that all members should certainly do so, and then they will probably decide to visit 300, High Holborn, W.C., on Monday, September 26th, at 4 p.m. Then they will have an opportunity (before it is too late) to state their views on some very important proposals."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 28, 29, 32, 33, 34, and 35 of our advertisement columns, and advertisements as to partnerships, assistantships, and locum tenencies at pages 30, 31, and 32.

THE appointment of certifying factory surgeon at Newton Stewart (Wigtown) is vacant.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page)	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.